

NETWORK WORLD

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Mux maker reveals new product plan

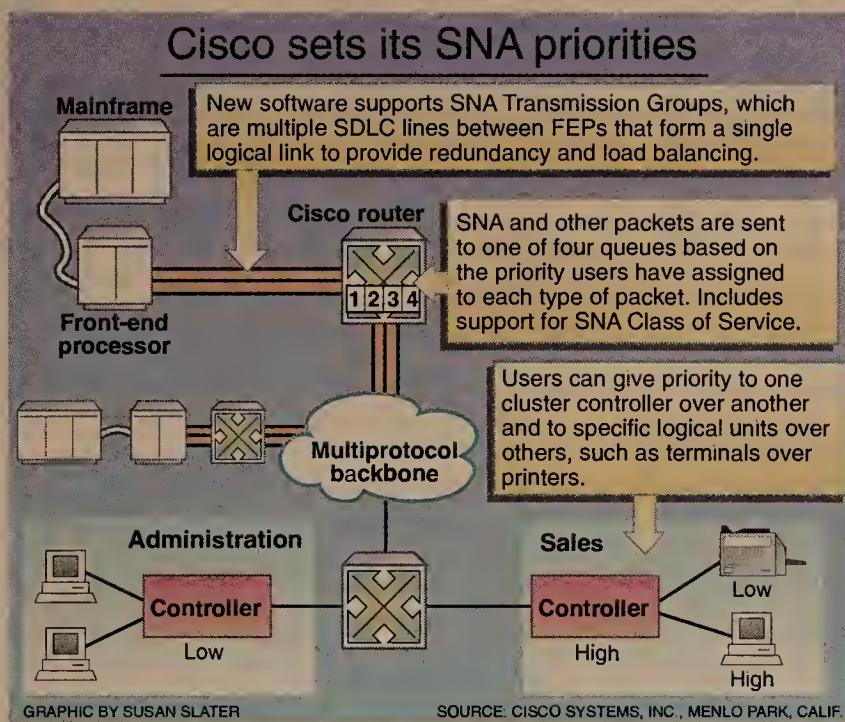
By Jim Duffy
Senior Editor

WOODCLIFF LAKE, N.J. — Ascom Timeplex, Inc. last week said it plans to adopt Hewlett-Packard Co.'s OpenView systems and network management platform as its core management offering for new products.

The firm also revealed it will outfit its low-end entreeLink+ multiplexer with local-area network bridging and routing cards and admitted it has scaled back plans for its high-end Synchronous Optical Network (SONET) Synchrony mux.

On the OpenView front, Ascom Timeplex said it will offer a version of the management system next year that can run alongside the company's Time/View 2000, 3000 and 2500 and Time/LAN 100 management applications on a Sun Microsystems, Inc. workstation. OpenView will manage new Ascom Timeplex products, including the Synchrony mux, that support the Simple Network Management Protocol.

The firm said it has no plans to migrate existing management (continued on page 55)



User trial called major step in evolution of SMDS

By Bob Wallace
Senior Editor

PITTSBURGH — In the broadest show of user interest in Switched Multimegabit Data Service (SMDS) to date, six organizations here last week launched a large-scale trial of the service.

In the trial — the first to focus exclusively on SMDS for inter-company data applications — universities and companies will use SMDS from Bell Atlantic

Corp. to support data and video communications and access wide-area backbone networks.

"This trial represents the next major step in the evolution of SMDS," said Frank Gratzner, executive director of broadband data services for Bell Commu- (continued on page 56)

Cisco challenges IBM peer-to-peer net plan

Router maker fleshes out SNA strategy, offers new alternative to APPN for multiprotocol nets.

By Bob Brown
Senior Editor

MENLO PARK, Calif. — Cisco Systems, Inc. last week outlined a Systems Network Architecture peer-to-peer networking plan that includes a bold initiative to build an open alternative to IBM's APPN.

Cisco's proposed Advanced Peer-to-Peer Networking alternative, dubbed Advanced Peer-to-Peer Internetworking (APPI), will combine SNA peer-to-peer routing with Transmission Control Protocol/Internet Protocol features. APPI will be developed by a new industry consortium being formed by Cisco and will be available to anyone free of charge.

APPI is encompassed in the final phase of Cisco's five-part plan designed to let users migrate SNA traffic to local-area network internets. Phase 5 also calls for Cisco to license IBM's APPN Network

Node specification. In addition, Cisco announced (continued on page 55)



■ Net managers put celebration on ice as EC efforts fall short. Page 39.

■ Nutshell primer zeros in on middleware. Page 59.

Users share concerns about network-based applications

Downsizing. Client/server. Distributed database. Networks have brought about dramatic changes in the way users build and deploy applications. The network has really become the applications platform of the '90s.

But network executives are facing many challenges in helping their companies realize the promise of distributed applications. In this special two-part interview, *Network World* Editor John Gallant and Senior Writer Joanne Cummings talk with IS managers from Boston-area companies about the software issues they face today.

This week, users offer candid views on the network strategies of application vendors large and small. In next week's issue, they'll discuss how networking has reshaped software buying decisions and the role of network

executives in the purchasing process.

Are vendors providing you with client/server or

planning and technology at Boston Edison: There aren't many plug-and-play applications. For example, I couldn't find a client/server general ledger application that satisfies our needs. There are plenty for mainframes.

Allan Elkowitz, director of information technology, Children's Hospital: We're in



Net managers Elkowitz, Dubiel and Davis (l. to r.) talk software.

network-based applications that take advantage of the communications infrastructure you've put in place?

John Dubiel, manager of

the process of replacing our financial system, and we're not even considering anything other than an old-fashioned dinosaur (continued on page 10)

NETLINE

FEARING HOLIDAY disruptions, users ask FCC for delay in 800-portability. Page 2.

HURRICANE ANDREW teaches some hard lessons about disaster preparedness. Page 2.

BIG BLUE PRIMES AS/400 for APPN, client/server. Page 2.

BELLCORE TO TEST CPE for compatibility with SMDS, frame

relay specifications. Page 4.

COMPAQ DIVES into printer market. Page 4.

OMNIPOINT 1 STANDARDS roll out, promising interoperability among net management products. Page 4.

AMERITECH TO SPEND nearly \$1b to triple amount of fiber in its region. Page 56.

Users ask FCC to postpone 800-portability deadline

Businesses are concerned about vulnerability of the public network during crucial fourth quarter.

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — Alarmed that the cutover to new technologies needed to support 800-number portability could cause major network problems during the busy fourth quarter, users last week asked the FCC to push back its portability deadline.

A year ago, the Federal Communications Commission ordered regional Bell holding companies and major independent local carriers to have the equipment necessary to support 800 portability in place by March 1993. Many local carriers are

planning to begin testing and cutting over the new technology in the fourth quarter.

The decision to seek a delay in 800 portability is a dramatic about-face for users. There has been unanimous support for the move to 800 portability, which will allow customers to change long-distance carriers but maintain current 800 numbers. Also, portability is expected to increase competition, drive down prices and enhance the value of toll-free services.

In order to support portability, local carriers must install new
(continued on page 7)

Andrew reminds users of need for disaster planning

Even most prepared didn't escape nature's rage.

By Wayne Eckerson
Senior Editor

Hurricane Andrew, which ripped through southern Florida two weeks ago, decimating almost everything in its path, taught users new lessons in disaster preparedness and reinforced some old ones.

The hurricane showed that not even underground cable conduits are immune to the ravages of nature and highlighted the vulnerability of water-cooled generators and mainframes to low water pressure.

It also revealed that many companies lacked adequate in-

surance coverage for computer and network equipment, and underestimated the time and money required to rewire local-area networks and offices.

Despite the slew of disasters in the past few years — which have highlighted the importance of disaster recovery planning — many companies hit hard by Andrew lacked adequate disaster recovery or business resumption plans.

Whitney McIsaac, director of sales at Executive Data Systems, Inc., a systems integrator in Coral Gables, Fla., said many of his
(continued on page 56)

AS/400 prepped for APPN and client/server growth

By Michael Cooney
Senior Editor

NEW YORK — IBM last week strengthened the networking capabilities of its Application System/400 to better handle future enterprisewide Advanced Peer-to-Peer Networking (APPN) and client/server environments.

The enhancements include closer ties to VTAM on the mainframe, third-party facilities that bolster the AS/400's role as a server, and improved net and system management features.

The enhancements will be added to OS/400 Version 2 Release 2, which was announced in

February. The operating system will now ship Sept. 18, three months ahead of its original shipping date of Dec. 18.

The announcements were part of a larger AS/400 rollout, which includes more powerful AS/400 processors and data storage facilities.

For SNA users with AS/400s tied to mainframes, the announcements mean a closer integration of those platforms in preparation for the advent of APPN on the host.

A new "takeover" feature in OS/400 will let the box automati-
(continued on page 58)

Briefs

DEC to fill out Polycenter . . . As expected, Digital Equipment Corp. this week will unveil Polycenter SNA Manager Version 1.0, an IBM Systems Network Architecture management application it co-developed with Systems Center, Inc. ("DEC, Systems Center plan management link," *NW*, June 22). The application works with a new version of Systems Center's Solve:Connect product to allow managers to control SNA, Transmission Control Protocol/Internet Protocol, DECnet Phase IV and DECnet OSI nets from any of three management systems: DECMCC Director, IBM's NetView or Systems Center's Net/Master. The software is priced at \$15,314 and will ship in November.

DEC will also roll out Polycenter System Census Version 1.0, which collects and consolidates system configuration information, and Polycenter System Watchdog Version 1.0, a tool that assists system managers in detecting and resolving problems on networked systems. Pricing was not available, but both will ship by the end of October.

. . . and offer new Pathworks connection. Digital Equipment Corp. this week will unveil software that allows remote DOS-based personal computers to access DEC Pathworks servers over X.25 packet-switched links. The software, called Pathworks X.25, works with Eicon Technology Corp.'s X.25 network interface cards, which DEC will resell, and DEC's Pathworks for DOS client software. The X.25 software will cost \$249. Pricing for the Eicon cards will start at \$1,139 for an eight-bit version and \$1,659 for a 16-bit version.

Banyan to unveil NetWare ties. Banyan Systems, Inc. next week is expected to release the long-awaited package that will tie its Street-Talk directory services to Novell, Inc. NetWare local-area networks ("Banyan takes a new tack in LAN fight," *NW*, June 15). Although code-named Ivy, the product name will be Enterprise Network Services for NetWare, according to sources. The software will let NetWare nodes access both NetWare and VINES servers.

ADCU to join ranks with CMA. The Association of Data Communications Users (ADCU) last week announced it has merged its membership into the Communications Managers Association. According to Ron West, president of ADCU, the move will benefit members of both organizations by bolstering numbers and consolidating efforts, giving the members a stronger, more united voice.

Fax translator spits out computer records. Teknekron Communications Systems, Inc. last week announced FaxElectronic Media Claim (FaxEMC), a device that converts facsimile-based Medicare health claim forms into standardized computer records. FaxEMC is geared to small health care providers that currently submit paper forms. It will make it possible to automate the processing of 300 million additional Medicare claims a year, Teknekron said.

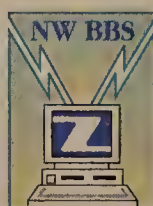
Congressman outraged at NTIA tack. Rep. Edward Markey (D-Mass.) last week labeled as "outrageous" the effort by the National Telecommunications and Information Administration (NTIA) to solicit private-sector funds to defray the cost of a report that will detail ways competitive bidding could be used to auction radio spectrum. Markey accused the NTIA of making an "end run of Congress," saying the NTIA has no authority to solicit funds. He told the NTIA to rescind the notice or present a legal memorandum explaining its position to the House Telecommunications and Finance Subcommittee.

CONTACTS



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Net-ready printers from Compaq bow

By Caryn Gillooly
Senior Editor

NEW YORK — Compaq Computer Corp. last week entered the printer market with the release of two laser printers designed for local-area networks.

The printers, the Compaq Pagemarq 15 and 20, not only come with internal network interface cards (NIC), but they also contain a facsimile modem and ship with software that lets net administrators receive status and error messages about the devices.

Although most of these capabilities are available with other printers, analysts said the combination of high-end features and a low-end price make Compaq's entrance into the printer arena significant.

"They've done a nice job and are definitely breaking some ground here," said Joel Wecksell, an analyst at Gartner Group, Inc., a Stamford, Conn., consultancy. "They're taking a reasonable engine and adding good networking capabilities, very good performance, a good reputation for service and a low price — that's what's unique about this."

The internals

The Pagemarq 15 and 20 can print 15 and 20 pages per minute, respectively. Both support direct

connection to Ethernet, token-ring or Apple Computer, Inc. LocalTalk nets. These interface options eliminate the need for a print server.

The most unique feature of the printers is their internal fax capabilities. The fax board lets the printer act as a high-end fax machine for other LAN-attached devices.

"The fax capability literally lets you send and receive faxes from the printer," said Lynn Schlemeyer, director of marketing at Compaq's new peripherals division based here.

According to analysts, although other vendors offer internal fax capabilities, Compaq's Pagemarq printers are the first to offer PostScript faxing. PostScript is one of the most widely used printer languages.

"I really love the fax board," said Richard Weeks, manager of hardware services at Houston-based Enron Gas Service Corp., a beta site for the Pagemarq 15 for the past two months.

Other Pagemarq features include simultaneous interface capabilities so that all the printers' interfaces can be active at the same time.

This means that a single printer acts as a network printer, an individual users' printer and even a fax machine, all at the same time. Other printers typically allow usage of only one port at a time.

For Novell, Inc. NetWare users, the administration capabilities of the Pagemarq may be the most important. Two software-based utilities provided with each

(continued on page 56)

Bellcore to test for frame relay, SMDS conformance

Expected to bolster use of new technologies.

By Bob Wallace
Senior Editor

LIVINGSTON, N.J. — Bell Communications Research is expected this week to announce plans to test customer premises equipment for compatibility with its frame relay and Switched Multimegabit Data Service (SMDS) specifications.

Bellcore, which is owned by the regional Bell holding companies and two independent telephone companies, will become the first non-vendor/carrier organization to perform frame relay and SMDS equipment conformance testing.

This should allay users' fears about compatibility of equipment with frame relay and SMDS services offered by carriers and spur adoption of the technologies.

"Bellcore conformance testing will certainly lessen users' fears of [product] incompatibility. And it should help lend credibility to the growing SMDS industry," said Steve Starliper, director of SMDS for Pacific Bell.

That sentiment was echoed by Ross Kocen, chairman of the Frame Relay Forum's testing and interoperability committee and a

product marketing manager with Tekelec, Inc., a Calabasas, Calif., test equipment vendor. "There's big demand for conformance testing," he said.

He added that while Bellcore will offer conformance testing, it will not be certifying products for those services. Bellcore declined comment on its upcoming plans.

According to Kocen, however, Bellcore will be testing equipment submitted by local exchange carriers or customer premises equipment vendors. Sources were unsure whether users will be able to submit equipment for tests.

He said local carriers pushed Bellcore to tackle conformance testing because of a lack of independent testing facilities. Currently, long-distance carriers and a few RBHCs test customer premises equipment to determine if it will work with their frame relay services. Only a few RBHCs have begun testing equipment for conformance with their nascent SMDS offerings.

But analysts say there is a big difference between Bellcore tests and those performed by carriers.

"When Bellcore tests a prod-

uct for conformance with frame relay or SMDS, they test to the letter of the law, which is the specifications they have already developed," said Daniel Briere, president of TeleChoice, Inc., a Montclair, N.J., consultancy. "When a carriers tests CPE, they test it for conformance with their implementation of the Bellcore specs, and they can differ."

Briere said Bellcore will charge for conformance testing but does not know how much.

He added that Bellcore also eventually plans to conduct interoperability tests of frame relay devices and SMDS equipment but was not sure when the testing would begin. ■

Corrections: A chart in the Internetworks section of the Aug. 31 issue contained erroneous information. The figures represented each vendor's percentage of total 10Base-T Ethernet ports shipped in 1990 and 1991, not the percentage of installed base. Also, in 1991, Hewlett-Packard Co. shipped 10% of these ports while Ungermann-Bass, Inc. shipped 7%.

An incorrect telephone number for Stony Brook Technologies, Inc. was given in last week's Netnotes. The correct number is (516) 567-6060.

OMNIPoint 1 systems and net mgmt. specs unveiled

By Bob Brown
Senior Editor

BERNARDSVILLE, N.J. — The Network Management (NM) Forum last week announced the release of OMNIPoint 1, a comprehensive set of open standards and specifications for network and systems management that promises to foster more interoperability among management products.

The availability of the Open Management Interoperability Point (OMNIPoint) 1 standards should make it easier for vendors to build products that work together, which means users should be able to buy highly functional, integrated management systems at a reasonable price.

"We think OMNIPoint 1 is a significant milestone showing the ability of a large number of industry players who have a stake in network management to pull together toward a common direction; we got done what we said we were going to do," said Bill Gilbert, president of the NM Forum, which coordinated the OMNIPoint 1 development effort, and

AT&T's director of network management. "The implication for users is that they will have an easier time sorting through a bewildering array of network management stuff."

Ron Scott, chairman of the NM Forum's User Advisory Council and section head of Ontario Hydro's telecommunications opera-

tions, said OMNIPoint is a step forward in moving to truly integrated systems and net management. "From the user point of view, we have something we can refer to in [requests for proposal]," he said.

OMNIPoint 1, which has been in the works for more than a year and was completed on schedule, is designed as the first of an ongoing series of reference guides for buyers and makers of management products and services. It is a set of 97 documents that includes

(continued on page 58)

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Intel's new StorageExpress offers centralized backup for NetWare

By Margie Wylie
Senior Editor

HILLSBORO, Ore. — Offering managers more centralized control of the data scattered across corporate LANs, Intel Corp. last week announced its entree into the LAN backup market.

StorageExpress, due by month's end, is

an integrated hardware and software backup package that lets managers control backup activities and data on Novell, Inc. NetWare local-area networks from a central location, regardless of the number of NetWare or backup servers on the net.

StorageExpress Central, a Windows 3.1 application, serves as the nerve center for

all the StorageExpress servers on a network. From the software's graphical user interface, managers can perform maintenance, diagnostics and management tasks for all the StorageExpress servers attached anywhere on an enterprise network.

For example, a manager located in New York could alter the backup schedule for a server in Singapore, remotely shut down and run diagnostics on a backup server in Houston or even back up DOS, OS/2 and Windows workstations.

The software lets managers schedule automatic incremental, differential and

full backups. Incremental backups are used to back up only new elements, such as a new disk, while differential backups let managers back up only data that has changed. Full backups back up all data.

StorageExpress also lets managers search for backed-up files over a number of servers and can search for all the appropriate files necessary to restore a server's data to the form it was in on a certain date and time, prompting the manager for the correct tapes. The program can also generate reports of backup activities and can be used to configure an array of backup options such as security.

Running on NetWare Runtime licensed from Novell, the StorageExpress' server software comes preinstalled and configured. It is based in part on Novell's Storage Management Services (SMS) and software licensed from Cheyenne Software, Inc.

SMS is a standard application program interface for backup that Novell began offering in its latest NetWare V.3.11 release. "The SMS architecture is being built into the file system [of NetWare] so that every time they upgrade NetWare, it doesn't break every backup program out there,"

What are VSAT users saying about AT&T Tridom?



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It shows in the 1992 Users' Choice survey conducted by Data Communications in which AT&T Tridom was voted the Best Overall VSAT Vendor with the Best Technology.

And it shows by what industry analysts are saying. A recent Yankee Group report lauded AT&T Tridom's shared hub service capability, technical superiority, and facility for combining VSAT technology with terrestrial data services.

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The software lets managers schedule automatic incremental, differential and full backups.



said Tom Hadden, product marketing manager for StorageExpress. To support versions below 3.11, Intel had to write or license software that isn't shielded from changes in Novell's operating system. "It's the only way to do backup for anything under V.3.11 today," he said.

StorageExpress servers are made up of a control unit and peripheral unit. The control unit — basically a customized, monitorless Intel 486 PC — includes a hard disk for storing a database of backed-up files, an integrated 32-bit Ethernet card, a port preconfigured for a NetWare-compatible uninterruptible power supply and another port preconfigured for a label printer, used to identify backup tapes. The peripheral unit has tape drives and connects to the central unit via a high-speed Small Computer System Interface-2 bus.

The server will sell in two configurations. StorageExpress EL, which is equipped with a 486SX CPU, a 200M-byte hard drive and a peripheral unit with a 2.2G-byte 8mm streaming tape drive, is priced at \$9,995. StorageExpress XL, which offers a 486DX CPU, a 500M-byte internal hard drive and a peripheral unit with a 5G-byte 8mm streaming tape drive, costs \$13,995.

StorageExpress is only the first of a series of backup services the company hopes to offer, Hadden said. "We've created a platform for hierarchical data storage, where you'll be able to — for instance — move data from a [NetWare] server to magneto-optical, then to tape and then possibly off to a huge robotic library that might handle as much as a terrabyte." ■

Firms accuse AT&T of overcharging

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — Five corporations last week filed a complaint with the Federal Communications Commission seeking \$1.4 million in damages from AT&T for allegedly overcharging for short-haul private lines.

The users — Charles Schwab and Company, Inc; Japan Air Lines, American Region; Quotron Systems, Inc.; Texaco, Inc.; and TRW Information Systems Group, Credit Data Division — claim AT&T is taking advantage of a loophole in its tariffs to overcharge them.

The dispute centers around the way in which AT&T's intra-local access and transport area private lines are provisioned. Although the tariff does not explain it, the users claimed, there are two ways a private line can be provisioned: a direct link between customer locations or a circuit routed through an AT&T

central office. In their complaint, the users said AT&T provisioned private lines via an AT&T office unless a direct link was specifically requested.

With the indirect link, AT&T charges for two circuits and assesses two charges for access coordination, access connection and central office connections.

The users said they would pay for only one local channel and one access coordination charge if the circuit were provisioned directly between two sites.

Refund request

In the complaint, users claimed they have paid AT&T a total of about \$1.4 million in overcharges and asked the FCC to order refunds. The combined amount of overcharges is increasing by \$14,884 per month, according to the complaint.

AT&T officials had no comment, but Henry Levine, an attorney with Morrison & Foerster here who is representing the group, said he and the users met with the carrier to seek refunds. According to Levine, AT&T said its tariffs are clear and users should have known there were two ways to provision the circuits. ■

Users ask FCC to delay deadline

continued from page 2

database technology, which stores routing information for 800 traffic, and Common Channel Signaling System 7 to handle database look up and call setup tasks. And that's not a trivial job.

Henry Levine, a telecommunications attorney representing numerous financial institutions, likened the net upgrade to "rolling out adding machines and rolling in computers." As with any major network upgrade, "The biggest concern is that the first 30 to 90 days after cutover to a new system are, by far, the time of highest vulnerability," Levine said.

The fourth quarter is a make-or-break period for firms that depend on the busy holiday season for a big chunk of profits. Holiday ordering puts an especially heavy burden on 800 operations, and users are unwilling to risk this business on a new technology.

One-half of credit card authorizations, for example, are handled over 800 numbers, said Levine, who also represents credit card companies such as Visa International, Inc. and MasterCard International, Inc. He said as much as \$50 billion in transac-

tions are at stake during the fourth quarter.

The Ad Hoc Telecommunications Users Committee last week asked the FCC to prevent carriers from using new technology for routing 800 traffic until the first-quarter 1993. The group's filing warned of "acute consequences" of 800-related net problems.

"The fourth quarter of the calendar year is critical to the profitability of important sectors of the economy, and these parts of the economy are influenced materially by transactions handled over 800 service," the group told the FCC. Among the companies that stand to lose the most are retail, travel, lodging and credit card firms, the group added.

Levine said he will be filing documents with the FCC supporting the ad hoc group's request perhaps as soon as this week.

According to James Blaszk, the group's counsel, users are concerned about degradation of service quality — particularly increased call setup times — and the potential for network crashes.

The International Communications Association is not planning to file a delay request with the FCC, but it does share other users' concerns about service

quality during the cutover to new technology for 800 portability.

After the deadline for 800 portability, local carriers must meet performance standards set by the FCC for the new database systems. But in the fourth quarter, carriers will not be bound by those standards, creating a sort of technical loophole, the ad hoc committee stated in the filing.

"The systems are being engineered to the promised call setup times, and if those times are not delivered because of this loophole, then transactions will be lost," Levine said. "Customers are going to scream at Visa or MasterCard [about such delays], not the carriers."

If the new technology causes delays, customers calling in orders over an 800 number will hang up and point-of-sale terminals, which expect very short postdial delay, may be disrupted. Additionally, disruption of POS authorizations could force companies back to paper lists of non-valid credit cards, opening the industry to the possibility of major fraud, Levine said.

Although the users asked the FCC to handle its requests expeditiously, it is unclear when the commission will reach a decision on the delay. ■

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Backbone E-Mail Network

cc:Mail X.400 SNADS MS Mail OSI TCP/IP X.500 Office Vision The Internet SMTP

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Thursday, September 17

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Tuesday, December 1

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Thursday, December 3

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Hyatt Regency
Tuesday, October 13

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DU100	Datapath Sw. Digital	64 Kbps	2-wire Sw. Digital	All Rates
DU170	Datapath Sw. Digital	64 Kbps	2-wire Sw. Digital	Keypad, Autodialer
TA120	Terminal Adapter	2 Ch. @ 64K 1 Ch. @ 16K	ISDN	Supports Voice & Data
TA/DL	Terminal Adapter	1 Ch. @ 64K 1 Ch. @ 16K	ISDN	X.25 PAD, Soft Upgrade
TA220	Terminal Adapter	2 Ch. @ 64K 1 Ch. @ 16K	ISDN	Combines "B" Channels
D56	DSU/CSU	56 Kbps	DDS	Low Cost 56K Sync.
DDS/MR1	DSU/CSU	56 Kbps	DDS	All DDS Rates
DDS/MR2	DSU/CSU	56 Kbps	DDS	DDS with Sec. Channel
DDS/V.32	DSU with V.32 Modem	56 Kbps	DDS/Analog	Auto-dial Backup
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- 1 ☐ Request for sales call
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3. Scope of purchase responsibility

- 7 ☐ Enterprise wide
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- 4 ☐ Within 60 days
5 ☐ Within six months
6 ☐ Within one year

4. Purchase influence/number of sites

- 9 ☐ One site 11 ☐ 10-20 sites
10 ☐ 2-9 sites 12 ☐ 21+ sites

101	102	103	104	105	106	107	108	109	110	111	112	113	114	115
116	117	118	119	120	121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140	141	142	143	144	145
146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175

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116	117	118	119	120	121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140	141	142	143	144	145
146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175

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DATA NET ARCHITECTURES

NETWORK ARCHITECTURES, DATA NETWORK EQUIPMENT, STANDARDS AND ENTERPRISE NETWORK MANAGEMENT

Worth Noting

“Asynchronous Transfer Mode will remain a niche technology for awhile. Not many people will pay \$10,000 per connection.”

Gilbert Bieri
Vice-president
Strategic programs
Ascom Timeplex, Inc.

Data Packets

Digital Communications Associates, Inc. of Alpharetta, Ga., last week announced a new version of its remote asynchronous personal computer file-transfer program that requires far less PC memory than previous versions.

Remote2 Version 3.0 reduces the random-access memory required to run applications from a host PC to a remote PC by up to 70K bytes, saving remote PC memory and letting users load additional applications.

Remote2 Version 3.0 is available now for \$195. Current Remote2 users can upgrade for \$49.

Frontier Technologies Corp. of Mequon, Wis., last week announced color support and corresponding keyboard mapping for its tn3270 Transmission Control Protocol/Internet Protocol emulation software.

The color support for the company's Super-TCP for Windows lets users set each of the various tn3270 screens to different colors, making it easier for them to identify different data fields on screen.

Color support and keyboard mapping for tn3270 Super-TCP for Windows is available for \$495. ☐

IBM's TCP/IP product lineup

	VM	MVS	OS/2	DOS	OS/400
Token Ring	✓	✓	✓	✓	✓
Ethernet	✓	✓	✓	✓	✓
PC Network	✓	✓	✓	✓	—
X.25	✓	✓	✓	3	✓
IEEE 802.3	✓	✓	✓	✓	✓
FDDI	✓	✓	✓	—	—
SNALink	✓	✓	Future	—	—
HyperChannel	✓	✓	—	—	—
3270	—	—	✓	✓	—
FTP	✓	✓	✓	✓	✓
Telnet	✓	✓	✓	C	✓
tn3270	✓	✓	✓	✓	✓
VT-100, VT-200	3	3	✓	✓	Future
RPC	✓	✓	✓	✓	—
NCS	✓	✓	✓	—	—
Dynamic routing	✓	✓	✓	✓	—
SMTP	✓	✓	✓	C	✓
NFS	S	S	✓	C	S
X Window System	C	C	S	3	C
SNMP monitor	✓	✓	✓	—	—
SNMP agent	✓	✓	✓	Future	Future
OSF Motif	✓	✓	Future	—	Future
CICS Sockets	✓	✓	✓	✓	—

✓ = Available
C = Available as client
S = Available as server
3 = Available from third parties

SOURCE: IBM, WHITE PLAINS, N.Y.
GRAPHIC BY SUSAN J. CHAMPENY

FTP = File Transfer Protocol
NCS = Network Computing Service
NFS = Network File Service
OSF = Open Software Foundation, Inc.
RPC = Remote procedure call
SMTP = Simple Mail Transfer Protocol

N.J. Bell upgrades network with \$3.3m in NCR gear

Goal is to cut paperwork, maximize efficiency.

By Jim Duffy
Senior Editor

NEWARK, N.J. — New Jersey Bell Telephone Co. last week announced the purchase of \$3.3 million worth of servers and other gear from NCR Corp. that will be used in a network upgrade aimed at eliminating paperwork and maximizing the efficiency of the carrier's service personnel.

The new NCR notepad computers, database servers and workstations are used in a network that enables New Jersey Bell's field service representatives to readily share information with engineers about the status of installation, repair and maintenance work.

The Bell operating company purchased 300 NCR Model 3125 Notepad computers, 12 StarServer E multiprocessor workstations and 76 Model 3345 database servers. The database servers will be installed in New Jersey Bell engineering offices, customer service centers and smaller field locations, while the StarServer E multiprocessors will be installed in district offices.

The equipment is intended to

help automate functions such as inventory management, logging of personnel time and work records, and electronic mail.

The network currently consists of 2,400 bit/sec dial-up analog connections between notepad computers, database servers and multiprocessing systems, and dedicated 9.6K bit/sec Synchronous Data Link Control lines between the database servers and an IBM mainframe.

But within a year, the NCR products will be connected by a router-based local-area network internet that New Jersey Bell is building, said Tony Kurelja, manager of distributed service systems for the BOC.

When that network is completed, the notepad computer users will be able to log on to any machine on the net as long as they have valid addresses and security authorization, Kurelja said. Currently, the notepads can only dial into the database servers.

With the NCR 3125 notepad computer, engineering supervisors can log work status and inspection reports, and results of

(continued on page 15)

IBM forging ahead on the TCP/IP front

Big Blue to add support for high-speed TCP/IP networking and widespread application access.

By Michael Cooney
Senior Editor

RALEIGH, N.C. — Once a stranger to IBM SNA networking strategies, TCP/IP has moved from the back room to the corporate backbone, and with a vengeance.

During the past two years, IBM has moved quickly to improve the Transmission Control Protocol/Internet Protocol's least common denominator status and, in the next 12 to 24 months, will continue that drive by adding support for products and services such as high-speed networking and access to multivendor applications.

The new features will make IBM's TCP/IP family easier to work with and give it better performance, which will help users grow large multivendor networks that support applications spanning a wide range of hardware platforms. IBM's TCP/IP family includes TCP/IP communications and application software

for OS/2, OS/400, MVS and VM operating systems.

In the past, one of the most common complaints about TCP/IP nets from Systems Network Architecture users was that the gateways required to gain access to TCP/IP applications on the host were slow.

Many users have been willing to accept poor performance in exchange for the multivendor interoperability that TCP/IP provides, analysts said. But SNA users looking to embrace TCP/IP nets will ultimately demand higher speed TCP/IP access, they added.

IBM has helped ease performance problems by introducing products such as the 3172 Interconnect Controller, which lets TCP/IP nets link directly with the mainframe.

But the company has other high-speed plans, as well. IBM said it will add support for frame relay, Integrated Services Digital (continued on page 15)

ADC Kentrox net access device airs

By Jim Duffy
Senior Editor

PORTLAND, Ore. — ADC Kentrox believes it has found a way to reduce equipment and leased-line expenses for users seeking access to public network services.

The company last week brought out Terminator, an integrated network access device that combines the functions of modems, multiplexers, channel banks and data service unit/channel service units for linking private branch exchanges, facsimile machines and local-area networks to the public net.

Codeveloped by ADC Kentrox and Premisys Communications, Inc., Terminator combines circuit, fast packet and cell switching capabilities in a modular chassis.

By combining network access for a variety of customer premises equipment in a single device, Terminator is said to make more effective use of T-1 or E-1 access lines to switched public network services. For example, administrators can program Terminator to allocate bandwidth not being used by a PBX to a video coder/decoder.

Traditional multiplexers, by contrast, dedicate portions of T-1 or E-1 access lines to a specific device, which limits the number of devices per line and wastes access bandwidth, ADC Kentrox said.

Terminator supports eight slots for customer premises equipment modules. Among the modules supported are two- and four-wire voice cards and RS-530/RS-449, V.35 and RS-232 data interfaces. The RS-530/RS-449 and V.35 ports support speeds ranging from 56K to 2M bit/sec, while the RS-232 ports support data rates from 2,400 to 19.2K bit/sec.

Terminator also has seven (continued on page 10)

Users share apps concerns

continued from page 1

system. We're putting up the new financial system on our VAX running standard old VMS. But with [DEC's] Pathworks, users will potentially have access to the database for things they want to crunch at their own PCs. For standard transaction processing, payroll or other sorts of functions, though, IS will continue to run those in batch.

Houghton LeRoy, principal network engineer, The Foxboro Co.: One of the major issues here is what's client/server? It's not a simple thing. There's probably five or six models of client/server that people talk about. It's very confusing.

Are you clear on where the major vendors are taking their applications? Do you have a good sense of how they are making products more network-capable?



Houghton LeRoy

“We need products that help us create efficiencies in processing and move to some new kind of paradigm.”



Dennis Sullivan, assistant vice-president, Scudder, Stevens & Clark: They all tout interoperability and interconnectivity. They all talk about standards. The question is which standards and how much interoperability and what return on investment is that for me? Is that something I'm really going to be able to take advantage of for my company and get a return on my investment? I think that's the hardest thing to sell. Why should I change when what I've got now is working?

Gerry Nadeau, information management supervisor, GTE Government Systems: One thing we look for in networked applications is economy of scale. And I don't think the vendors are helping us there. They're not making it easier for us to run applications on the network. It ends up costing us, not so much in big capital expense, but more on the support side.

Elkowitz: The vendors are doing a good job of selling the idea of client/server to users and selling to senior management that the [information systems] department must do this. But they're not giving us any good tools to do it with. If you want to spend a lot of money and hire a lot of people, you can certainly

do it. But just to go out and buy it, stick it in and make it go — no way. Not that I can see.

Nadeau: Vendors need to do a lot more, especially the Microsofts, the Borlands, the Lotus. They really came from a stand-alone PC platform, and they're trying to grow their businesses into the networking arena. They may have the right long-term ideas, but the execution is still up in the air. And I think that tends to be confusing to a lot of people, especially those who have implemented software and found that what they thought they were putting in wasn't always what they were actually getting.

Vendors have a lot of work to do in order to make a robust, fault-tolerant, easy-to-use system that you can run across a network.

Sullivan: We're still seeing a lot of stand-alone products being sold as network products. Lotus hasn't fundamentally changed. A lot of packages that we've bought as network packages are the same as the product that runs on the stand-alone PC. They're all PC products.

A lot more has to be put into development so that we get products that don't flood the network or use up bandwidth unnecessarily. We need products that help us create efficiencies in processing and move to some new kind of paradigm. We need client/server in the sense of having the server perform some computations and having the workstation perform other tasks so people aren't sending as much across the network.

Nadeau: Until a lot of the PC or Macintosh vendors really put the resources into networking development, you'll find that downsizing isn't going to be synonymous with down-costing. Downsizing to a lot of people has meant that costs are going to be high because there's so much you have to do yourself.

A lot of times, the vendors' products are not what we expect. They'll say, "This is our five-year

plan. This is how we're going to develop our word processing system. It's going to have integrated imaging, and maybe video and audio, built right in.' That's nice to hear and it could be something we're interested in, but until we can see the product, it's tough for us to go out and sell that to a user or CEO.

Do you feel vendors aren't committed to interoperability?

Dubiel: A lot of the vendors are trying to lock you in. They talk interoperability, but only as long as you're using their products. They're really not serious about it.

Sullivan: And if that's their strategy, they're probably not going to be a lot of help. Novell says, 'Hey, I want you to use DR DOS with your network shells in one shrink-wrapped package.' But they're trying to compete with Microsoft for ownership of the desktop. Microsoft's offering a PC operating system that will also do all your network transport. They'll tell you it's interoperability, but their strategy could be completely different.

LeRoy: The software vendors are so used to marketing for a stand-alone environment that they've really missed some of the important networking issues that go into purchasing software. One of the classics is Windows. First of all, it doesn't run on any of my 286s, which means I have a tremendous upgrade problem across the whole corporation.

Another issue is the licensing of the software under Windows. What do you do about the fact that when it's iconified, it's still active? I can't buy 2,000 licenses because people are sitting there with iconified applications. These are big problems. The vendors aren't addressing these issues, and it's keeping us from buying.



PHOTOS ©1992 ED MCKINNON
Dennis Sullivan

Elkowitz: Network compatibility is also a big issue. IPX is a great protocol, but it's not really routable. We're using routing heavily for security and for isolation within our network. But because IPX

isn't routable, we have to go to fancy encapsulation techniques, which add overhead, people and complexity.

I don't think vendors are thinking seriously about security either. They've talked about it, but they can't provide the kind of security we can get on MVS with RACF. They're still thinking small. They don't understand anything about auditing and control. What are the auditors going to say when they come in and see

unrestricted PC access to the general ledger database or to the payroll system?

Nadeau: It all boils down to whether the vendors are going to be in control or whether users make the calls as to where the technology is headed. If the vendors listen to the users, then I think the vendors and the users will see some long-term benefits.

Some of the more innovative client/server or network-based products are coming from small companies, such as PeopleSoft, Inc. Will you take a risk and purchase software from a start-up company?

“Until a lot of the PC or Macintosh vendors really put the resources into networking development, you'll find that downsizing isn't going to be synonymous with down-costing.”



Nadeau: It has to have a good niche and do something other vendors aren't doing. If it's going to save you a lot of time and money and it pays for itself in a relatively short amount of time, then it's something to look at. But that would probably only be OK in a smaller type of environment for us.

I don't know that a lot of people would take the chance of positioning something like that as a major development technology and bet the company on it.

LeRoy: One example of that is network management. We chose Lexcel's Lance product, for instance, because it was feature-rich. Even though vendors such as HP had similar products, we felt the one thing Lexcel offered was that Lance was their only product; that was their focus. They had a support group whose focus was network management, as opposed to HP — you don't know what their focus will be from week to week.

the larger established companies. But even with the smaller companies in a vertical market, we do a lot of investigation before we go with them — nontechnical investigation.

Sullivan: For a small, basically innocuous decision that's not going to affect anybody, we do it. A \$5,000 or \$10,000 decision is not going to hurt us. But if you're talking about something you might be risking the business on, something that might be very difficult to recover from, then we'll look at the company and the financial viability.

There's also a critical mass that smaller software companies have to reach. If they don't reach that, I don't think they'll survive. They can't do advertising, they can't do the marketing, and they can't continue to invest the venture capital; it dries up sooner or later. And they can't continue to invest in products because they don't have the maintenance dollars coming back in. □

ADC Kentrox net access device out

continued from page 9

slots for network interface cards, such as T-1/E-1, Integrated Services Digital Network Primary Rate Interface, frame relay, Switched Multimegabit Data Services and inverse multiplexing. All network cards operate at up to T-1/E-1 speeds.

Terminator has a 2M bit/sec bus and can support up to 64 voice channels, 16 RS-530/RS-449 and V.35 data ports, and 80

RS-232 substrate data ports.

Network administrators can change bandwidth allocations from management workstations attached to Terminator.

Terminator can also be configured to automatically dial up additional bandwidth based on specified times or when user-defined thresholds are exceeded. The device can also add a dial-up circuit whenever a line goes down.

Available now, Terminator is priced from \$10,000 to \$30,000 depending on configuration. □

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both Novell and AppleTalk environments, without the need for a print server.

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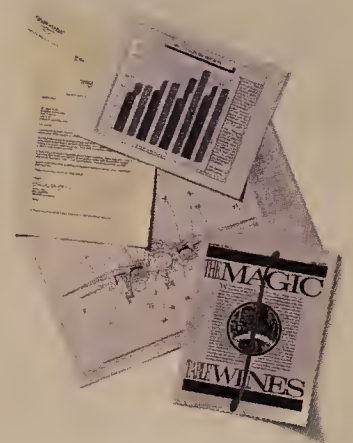
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Our Intelligent Emulation Sensing feature continually monitors, then automatically adjusts to either PostScript Level 2 or PCL 5 depending upon which language you're using. You needn't lift a finger.



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COMPAQ PAGEMARQ 20: 20 PPM < 20-MHz AMD 29000 RISC w/128-K cache < 4MB RAM standard, expandable to 20MB < 1,500-sheet (standard)

COMPAQ PAGEMARQ 15: 15 PPM < 16-MHz AMD 29000 RISC < 4MB RAM standard, expandable to 18MB < 750-sheet (standard), 1,000-sheet max w/ optional second TwinTray

BOTH MODELS: Up to 800 x 400dpi (COMPAQ High-Resolution Mode) < PostScript Level 2 and PCL 5 w/ Intelligent Emulation Sensing < One slot/port each for AppleTalk, Network Interface Cards, Internal FAX Modem, Serial and Parallel Port < Available Options: Internal 60-MB Hard Drive, 1- and 2-MB Programmable Font Modules < Consumables: One-piece cartridge w/12,000-page yield

At Compaq, we realize even the most advanced network printers in the world aren't worth the toner in their cartridge kits if you can't get the service or the parts that you need whenever you need them.

Thus we've designed CompaqCare. This is our comprehensive service and support program which includes our one-year free on-site* limited warranty.

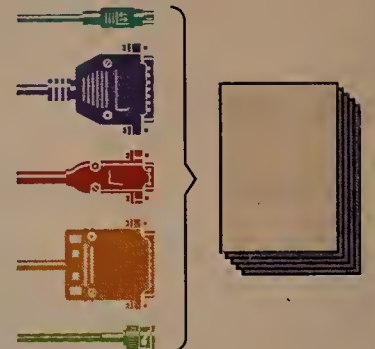
It will also provide you with, among other things,

repair of your printer by the second business day, anywhere in the U.S.

Whenever you need consumables, you can buy them at all participating office supply stores, at our more than 3,000 Authorized COMPAQ Reseller locations, or right from us.

For any questions, or to learn more about our new program for recycling consumables, phone our hotline at 1-800-345-1518 in the U.S.; in Canada, call 1-800-263-5868.

You'll find dedicated printer specialists eager to convince you that the path to greater network productivity begins not only within yourself, but along the paper path that is inside your COMPAQ PAGEMARQ Laser Printer.



Five interfaces, with a direct connect to Novell and AppleTalk, lets you simultaneously run Token Ring or Ethernet, AppleTalk, a serial and parallel port, plus an Internal FAX Modem.



Store PostScript fonts forever. Expand your font library. And eliminate constant downloading with Programmable Font Modules or the internal 60-MB Hard Drive.



With our printers' optional Internal FAX Modem, you can send and receive presentation-quality documents, in sizes up to 11" by 17". Right from your desktop.



Circle Reader Service #103

IBM forging ahead on the TCP/IP front

continued from page 9

Network and other high-speed technologies to its TCP/IP products.

"We are going to provide software that would act like a [Network Driver Interface Specification] device driver. That support will help bring frame relay support to TCP/IP," said Jim Holland, manager of IBM's TCP/IP products.

NDIS support would be added to the operating system running TCP/IP, such as OS/2 or OS/400, enabling it to take advantage of the high-speed service.

IBM is also looking to add support for Asynchronous Transfer Mode and Fiber Distributed Data Interface to its TCP/IP offerings in the future.

"We are working with our hardware groups to make sure we can support all of the fast transport mechanisms," Holland said. "As our high-end systems become servers to TCP/IP networks, performance becomes an important issue."

The Sockets connection

Also important to IBM is the notion of making the MVS mainframe and its applications just another node on a TCP/IP network.

IBM has begun implementing this strategy with the latest release of TCP/IP for MVS, Version 2 Release 2. It features a TCP/IP Sockets interface to CICS applications on the mainframe. Sockets is a TCP/IP application program interface.

The Sockets interface will give TCP/IP net users direct access to existing and future CICS applications on SNA-based hosts. CICS Sockets applications can operate as clients of, or servers to, other Sockets-based applications on a TCP/IP network.

In the future, IBM said it intends to add the ability for TCP/IP users to access Open Systems Interconnection applications

through its OSI/Communications Subsystem product in order to give TCP/IP users access to OSI's rich file-transfer and directory services.

Also making the mainframe a more palatable TCP/IP server is the 3172's TCP/IP Offload software. The Offload facility is an OS/2-based application that lets users move TCP/IP communications processing from the mainframe to the 3172. IBM claims the Offload feature can save 30% of the mainframe's cycles.

IBM has indicated that other devices could be used as TCP/IP off-load platforms

in the future.

"We are looking at additional off-load platforms, and the RS/6000 seems to be generating a lot of interest, but nothing is set in stone yet," Holland said.

At the client end of the TCP/IP spectrum, IBM will, by the end of the year, bring out Windows support for the protocol. IBM already supports TCP/IP under DOS and OS/2.

For 3270 terminals, new 3174 TCP/IP Telnet Licensed Internal Code, called Request Price Quotation 8Q0935, will let 3174-attached 3270 and ASCII terminals

establish Telnet sessions through one terminal to multiple IBM or non-IBM TCP/IP host applications.

IBM also intends to enhance its TCP/IP workstation offerings in order to let Network Basic I/O Systems users run their local-area network-based applications over TCP/IP nets, Holland said.

"The commercial market is new for TCP/IP technology, but it is rapidly becoming the accepted way of doing multi-vendor networking," Holland said. "We know that if we don't provide strong products for users, somebody else will." ■

Focus On Token Ring

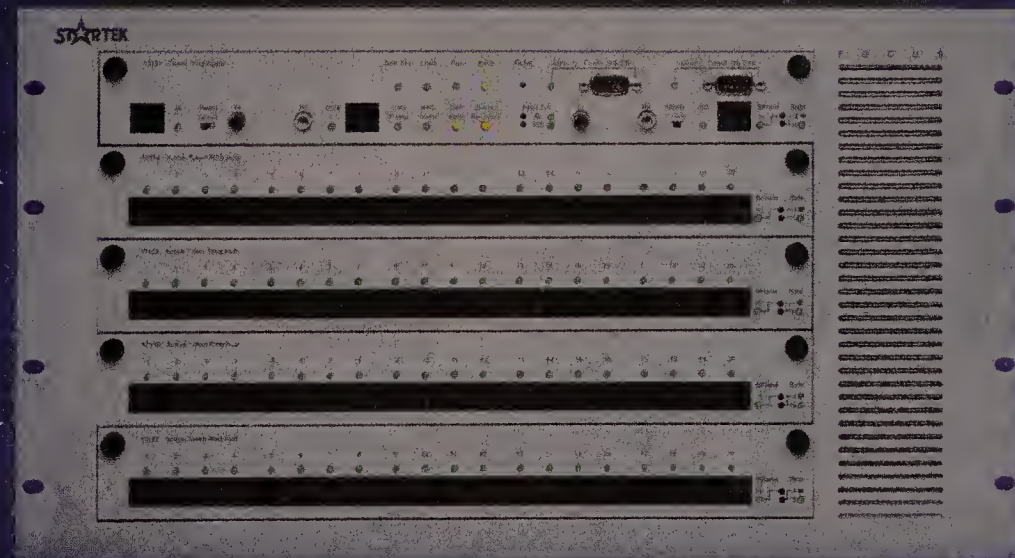
RISC-based network management agent supports SNMP, in-band and out-of-band communications, and RMON-compatible network analyzer functions.



2 Slot Chassis

Backplane support for Token Ring, Ethernet, and FDDI is standard for all chassis models.

Distributed Recovery Intelligence within each lobe module isolates faulty nodes automatically, even if the agent module is absent or down.



5 Slot Chassis

Ring in and ring out connections can be via STP, UTP, or optical fiber.

Lobe modules support shielded and unshielded twisted pair cabling to at least 100 meters for virtually all cable types.

Redundant fans and optional redundant power supplies ensure maximum uptime.

Introducing the Focus Series Intelligent Wiring Hub

The Most Advanced Solution for Your Strategic Token Ring Networks

An unbeatable combination of performance, management, and versatility.

Unmatched Token Ring Performance

Third generation design embodies all important token ring improvements. Active retiming and intelligent jitter cancellation on each lobe module allow you to mix and match the media and technology that's right for your network without complicated configuration rules. Mix UTP, STP, and fiber in any combination with up to 260 stations per ring. An advanced active UTP module supports 16 Mbps cabling distances up to 100 meters over low quality UTP and up to 200 meters over high quality UTP.

Network Management and Analysis

Embedded support for the SNMP RMON MIB means that you can have a remotely accessible network analyzer built right into every network. And better still, you can access this functionality from a variety of industry-standard SNMP network management platforms (including our own). An optional NetView interface simplifies LAN management integration.

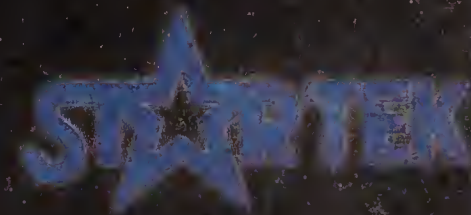
Automatic Network Recovery

Some types of problems are so urgent that you can't afford to wait for a manager to solve them. That's why every module has the intelligence to detect and automatically remove problems like beaconing adapters.

Token Ring, 10BaseT, and FDDI

Every Focus Series chassis supports all three of the most popular LAN protocols as a standard feature, providing you with a cost-effective platform for all of your present and future LAN needs. For complete information, call us at

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Circle Reader Service #107

N.J. Bell upgrades net with NCR gear

continued from page 9

line testing onto a digitized form using a cordless pen. The supervisor will then dial into the 3345 and send up the information, which will be combined with data, such as personnel records, from other 3345s.

The form will then be sent to the StarServer multiprocessors at district offices, where it will be stored and inserted into spreadsheets and word processing programs for report preparation. Any changes to the data will be made while it is stored on the StarServer. The new data will be downloaded to the 3345s and 3125s.

Currently, reports are written manually and the information is keyed into computers at customer service centers and district offices. Hard copies are then printed out and hand delivered to their destinations, New Jersey Bell said.

From their 3125s, field supervisors can also access work orders and technician job schedules on IBM mainframes by dialing into the 3345s, which emulate IBM cluster controllers. The mainframes also house customer records, and network installation and maintenance data, which can also be accessed by the 3125s via emulation. ■

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LOCAL NETWORKING

LAN HARDWARE, NETWORK OPERATING SYSTEMS AND LAN MANAGEMENT

Worth Noting

“**T**he Oracle [NetWare Loadable Module] is selling like hotcakes, but there’s still some question as to whether NetWare is really a true client/server environment.”

Neal Hill
Analyst
Forrester Research, Inc.
Cambridge, Mass.

Netnotes

Oneac Corp. this week is expected to bring out a resource management software package for its On Series of network-based uninterruptible power supply systems.

Called MopUPS/RM, the new software is designed for Novell, Inc. NetWare environments. It will run as a NetWare Loadable Module in NetWare 3.X environments and as a value-added process in NetWare 2.X environments.

With the new software, administrators will be able to monitor the network’s uninterruptible power supply activity.

They will not only receive power failure alerts and the reason for the power transfer, but will also be able to receive hardware-specific alerts, such as when batteries are needed.

According to Oneac, based in Libertyville, Ill., the software will operate on a server or a workstation. In addition, it will be compatible with Novell’s NetWare Management System as well as NetWare 4.X when these products are available.

MopUPS/RM is available now at \$149 per copy.

Dayna Communications, Inc. of Salt Lake City has begun shipping its Net-Scope System, an Apple Com-

(continued on page 23)

Novell adds CNA program to its certification stable

New designation is aimed at LAN administrators.

By Margie Wylie
Senior Editor

PROVO, Utah — Novell, Inc. last week began certifying NetWare administrators in addition to Certified NetWare Engineers (CNE), a more technical designation the company currently offers.

The new Certified NetWare Administrator (CNA) designation is aimed at users who perform system administration functions but do not need a full CNE designation, according to Novell. The company contends that the CNA program will set the standard for determining who can administer a network, just like the CNE program set the standard for who can install and service a network.

“To me, it sounds kind of like a good idea and kind of not,” said Chris Silva, a technology analyst for a large Midwestern communi-

cations company.

Too dependent?

While certification can offer employers minimum assurance of a new hire’s NetWare knowledge, there is the danger that companies could become overdependent on a designation that does not necessarily reflect any real-world experience. Silva said he has already seen that phenomenon with Novell’s CNE program.

Despite three years of experience installing, administering and troubleshooting NetWare networks, he recently opted to be CNE certified because of the credibility it holds in the eyes of management and because he can do so at his company’s expense.

“[CNE certification] really has become a resume check mark, and that’s unfortunate,” Silva

(continued on page 23)

Users can now get Net SatisFAXtion

By Margie Wylie
Senior Editor

HILLSBORO, Ore. — Intel Corp. this week will introduce an update to its Net SatisFAXtion fax server software for Novell, Inc. NetWare LANs that offers automatic routing of inbound faxes, remote client configuration, NetWare bindery import and a new Windows client.

Net SatisFAXtion Version 2.0 runs on a dedicated personal computer on a NetWare network and offers faxing services for up to 1,000 users attached anywhere on a NetWare local-area network.

“Unlike fax servers that send their jobs to [NetWare] print queues, we aren’t limited by the 256-user limit of a NetWare server,” said Mike Reynolds, a product marketing manager at Intel. The \$1,995 software will work with any DOS or Windows workstation with access to client software and a physical connection over a Novell Internetwork Pack-

et Exchange (IPX) net, he said.

Version 2.0 adds Dual Tone Multi-Frequency support, which allows senders to route faxes to individual users on a network by appending a push-button identifier. The fax server uses the identifier to automatically route faxes to a specific user without requiring the administrator to read cover sheets and distribute faxes.

The update also saves network managers the trouble of walking to each station on the net in order to configure it or to install the client software. Using a new feature in the administrator’s software, net managers can upload the fax client software to a NetWare server directory and then alter the start-up files of workstations so that they automatically load the software from the server drive each time the station boots.

A NetWare bindery import facility allows administrators to dump the user lists from NetWare servers directly into Net SatisFAXtion’s user database, saving them the effort of rekeying user information that exists elsewhere on the net.

“That could save a lot of money and time for really big companies,” Reynolds said.

The new Windows client, FAXability Plus for Windows, lets us-

(continued on page 23)

Moses’ product lineup

	Maximum peer-to-peer nodes	Transmission speed (bit/sec)	Price	Availability
MosesALL	8	2M	\$99, includes hardware, software and cabling	July
ChosenLAN	53	4M	\$399 for 2-node package	Late '90
MosesNodes special feature includes Novell, Inc. NetWare redirector	53	4M with first release, 10M by end of this year	Starting at \$59 for a single-port connection	October at NetWorld 92 Dallas

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: MOSES COMPUTERS, INC., LOS GATOS, CALIF.

Moses to command NetWare OS support

New MosesNodes peer-to-peer LAN NOS will include support for NetWare client software.

By Caryn Gillooly
Senior Editor

DALLAS — Moses Computers, Inc. next month is expected to join the ranks of companies such as Artisoft, Inc. and Webcorp as it brings out a NetWare-compatible version of its peer-to-peer network operating system.

The new MosesNodes offering will provide each user with a version of Novell, Inc. NetWare’s client software. This will let any node on a MosesNodes net access files and applications residing on NetWare servers.

MosesNodes is expected to be released at NetWorld 92 Dallas here in October.

With its first release, the new MosesNodes product will be virtually identical to the company’s flagship ChosenLAN product, available since late 1990. It will allow for a maximum of 53 peer-to-peer nodes, although it will be able to support 99 nodes in an environment of both peers and servers (see chart, this page).

Like ChosenLAN, the initial release of MosesNodes will run at 4M bit/sec. However, a 10M bit/sec version of the product will be available by the end of this year, according to Frank Berko, chairman and chief executive officer at Moses Computers, based in Los Gatos, Calif.

The primary difference between the two products will be the NetWare support. According to Berko, each MosesNodes user’s machine will be outfitted with a NetWare redirector or NetWare client software. MosesNodes will also support Novell’s

Internetwork Packet Exchange (IPX) transport protocol.

The combination will not only let MosesNodes and NetWare users exchange mail using IPX, but will also let peer-to-peer users access files within a NetWare 3.11

Support for NetWare within peer-to-peer environments is a growing need.



or 2.X server and run applications that reside in the server.

Broadened horizons

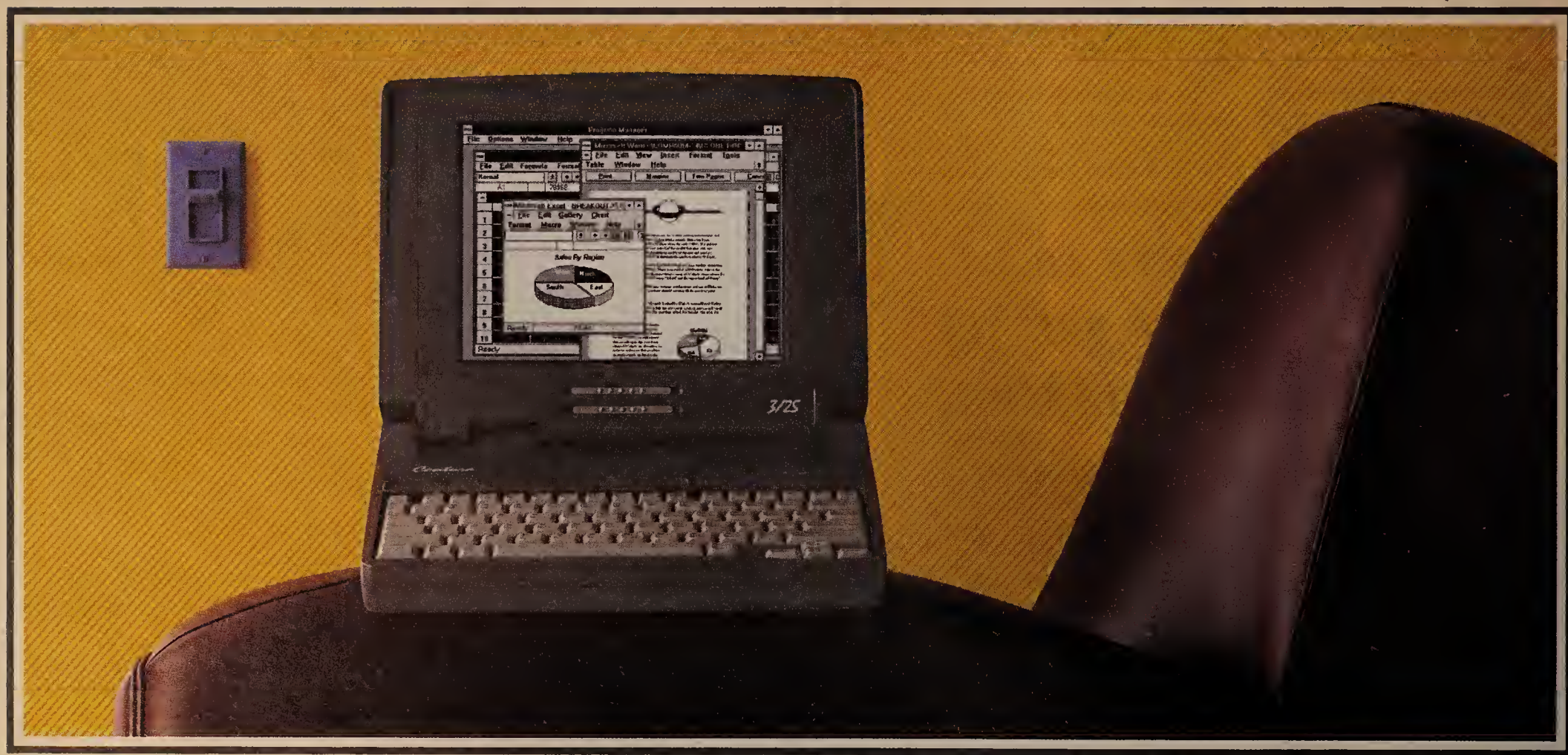
Analysts and users agree that support for NetWare within peer-to-peer environments is a growing need. This is particularly evident in larger corporations that have standardized on NetWare as the basis for their larger local-area networks but are implementing peer-to-peer nets in their remote offices and small work groups (“Prepping peer NOSes for the enterprise,” NW, Aug. 17).

“Particularly in small departments of larger organizations, interoperability among different network operating systems is the fundamental issue with peer-to-peer networking,” said Barry Gilbert, an analyst at the Acton,

(continued on page 23)

OUR NEW NOTEBOOK MILLION BUCKS. WHICH COULD BE MISLEADING

Recently, our engineers set out to create a remarkably different notebook computer. With all of the quality, durability and features that you need. All at a sensible price. The result, as you can plainly see, is a remarkably different notebook. The new COMPAQ Contura PC.



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computing since the fold-
down airline tray table,
the COMPAQ Contura

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sets a new standard for
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ergonomic design lies the
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or components. No second-rate manufacturing. No logos stuck on the outside after somebody else's guts went inside.

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Intel 386SL/25 with 64-KB cache
◀ 4 MB RAM (up to 12 MB) ▶ 60-
or 120-MB hard drive
Intel 386SL/20 ▶ 2 MB RAM (up
to 10 MB) ▶ 40- or 84-MB
hard drive ▶ Both models: 6.2 lbs.
◀ 9.5" VGA display ▶ Isolated
inverted "T" cursor controls ▶ 3.5-
hr. NiCd battery (optional NiMH
battery) ▶ Microsoft MS-DOS
5.0 as published by Compaq

and the right stuff in.

Open either COMPAQ Contura PC and you'll discover a large, 9.5-inch screen beaming brightly.

Place your fingers on the keyboard and they immediately feel at home.

This notebook also has a unique ability to hibernate when left idle, saving all your open files to the hard drive and automatically shutting your notebook off. Preserving your remaining battery life. Start up again hours, days, or even years later, and you're right where you left off.

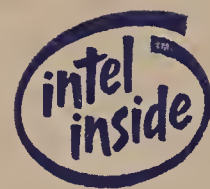
In addition to all of the above, the COMPAQ Contura notebook PCs support three optional, internal, power-conserving modems from Compaq.

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Just because you're out of the office doesn't mean you're out of touch. The COMPAQ Contura PC features an optional power-conserving 2400-bps data/9600-bps fax modem.



Starting at just \$1699, the COMPAQ Contura PC "packs an aggressive price/performance punch to startle mail-order competitors."—PC Magazine*



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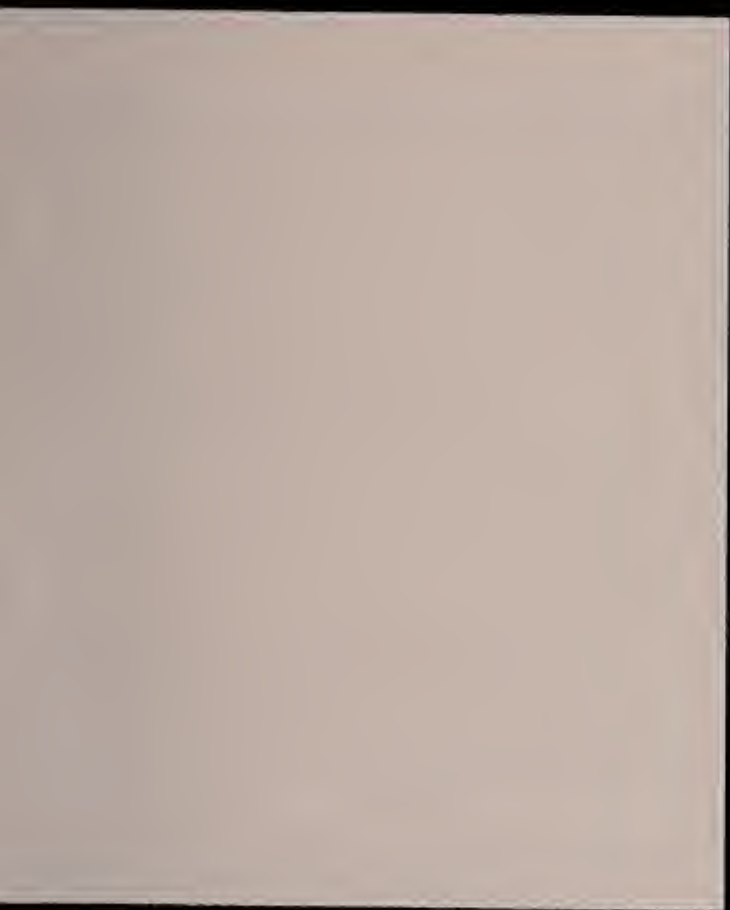
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INTERNETWORKS

LAN-TO-LAN AND LAN-TO-WAN EQUIPMENT AND STRATEGIES

Worth Noting

“There is nobody in the internetworking market today who has all the answers. Nobody is even close to having strong enterprisewide management, wide-area connectivity and operating systems in one package.”

Rob Held
President and
chief executive officer
Chipcom Corp.
Southborough, Mass.

Link Notes

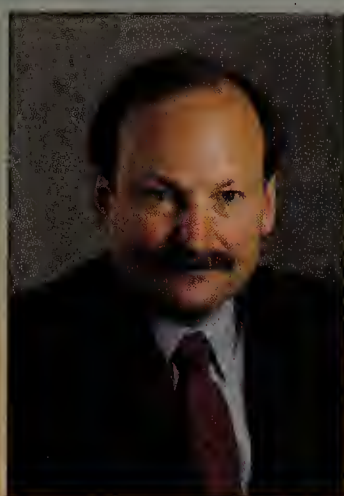
Hewlett-Packard Co. this week will unveil a new low-end hub in its EtherTwist line that can be upgraded via software changes to a fully managed Simple Network Management Protocol device.

The new EtherTwist Hub/12 is a 10Base-T Ethernet multiport repeater with 12 twisted-pair ports, one coaxial cable port, one attachment unit interface port and an RS-232 port for network management.

The hub is designed for sites, such as remote branch offices, that do not currently require sophisticated network management but may need it in the future as the local-area network or companywide network grows.

According to HP, the hub will help protect a user's investment because it can be upgraded to support SNMP management without hardware changes or additional hardware and without taking the hub down. To add SNMP management, users simply call a toll-free number to obtain a password that unlocks the

(continued on page 23)



“We believe the key issue in networking is to bring more software solutions to the enterprise network.”

Ralph Ungermann
President and CEO
Ungermann-Bass, Inc.

UB, Insight to port Mosaic pack to Access/One hub

Promise to ease central-site printer management.

By Bob Brown
Senior Editor

SANTA CLARA, Calif. — Ungermann-Bass, Inc. and Insight Development Corp. have announced an agreement under which Insight will port its Mosaic printer management software to an expansion device for UB's Access/One wiring hub.

Running Mosaic at the hub will make it easier for users to manage multiple printers across a network from a central site rather than from each local-area network server where Mosaic runs.

Under the agreement, UB and NetWorth, Inc., which is 50% owned by UB, will also resell Mosaic. Furthermore, UB and Insight have pledged to develop and market other software as well, including facsimile, document management and network management packages.

The agreement furthers UB's effort to position its Access/One product as not just a wiring hub, but also a server. UB in May announced Access/Open, an Intel Corp. 80386- or 80486-based hardware platform that connects to the Access/One and runs various network operating systems and applications. UB has already teamed with Microsoft Corp. and Novell, Inc. to support their respective net operating systems on Access/Open.

“We believe the key issue in networking is to bring a lot more software solutions to the enterprise network,” said Ralph Ungermann, president and chief executive officer at UB.

Insight, based in Emeryville, Calif., markets a variety of peripheral enhancement software for network and stand-alone

computers. David Norman, president and CEO at Insight, was a founding director and an original investor in UB.

Mosaic, Insight's flagship product, is a server-based printer management system that manages fonts, printers, print jobs and forms on NetWare networks. Insight is in the process of developing a NetWare Loadable Module (NLM) version of Mosaic that will also run on Access/Open.

“There are many missing elements in really being able to network printers effectively into a large enterprise,” said Mike Bmis, vice-president of engineering at Insight. “Most of the focus

“There is a huge need for connecting a range of printers across the enterprise network.”



has been on file sharing, but there is a huge need in the industry for effectively connecting a wide range of printers across the enterprise network.”

Insight plans to have Mosaic ready to run on Access/Open in October or November of this year. UB and NetWorth will begin to resell Mosaic and Insight plans to release its Mosaic NLM in the same time frame.

Mosaic on Access/Open will cost about \$100 per printer and will be available in five-, 10- and 20-printer configurations. ■

Chipcom unwraps new mgmt. modules

Offers versions for hubs of every size, adds new software distribution and port security features.

By Skip MacAskill
Staff Writer

SOUTHBOROUGH, Mass. — Chipcom Corp. last week enhanced its hub management capabilities with new versions of its Ethernet Management Module (EMM), including one that offers centralized software distribution and improved security.

Chipcom also announced that EMM, which is housed in the company's ONline System Concentrator, will now be offered in three versions to support Ethernet management needs ranging from a single work group environment to large internetworks.

Chipcom will offer Basic, Starter and Advanced EMMs.

The Basic EMM is essentially the current version of EMM running Chipcom's new EMM Version 3.1 net management software, which supports management of all Chipcom equipment plus a Simple Network Management Protocol agent that lets the EMM be monitored and controlled from any SNMP management system.

The Starter EMM has the same capabilities as the Basic EMM but is a low-end module for managing a single work group or departmental Ethernet LAN attached to an Online System Concentrator.

The Advanced EMM is a high-end module that offers advanced

(continued on page 23)

Firm enhances server with host connectivity option

By Skip MacAskill
Staff Writer

HYANNIS, Mass. — Fibronics International, Inc. has extended the capabilities of its workstation server with two new channel cards that allow the device to link directly to a host.

Fibronics' FX8610 Workstation Server is a six-slot device that supports Ethernet connections for workstations as well as access to a host on a Fiber Distributed Data Interface (FDDI) backbone.

The FX8610, which previously supported as many as 48 10Base-T workstations in an Ethernet work group, now enables users to directly access a host located off the FDDI ring.

The CC8613 card for thin-wire 10Base2 Ethernet and the CC8614 card for thick-wire 10Base5 Ethernet provide a 10M bit/sec link between the FX8610 and a host. The cards can provide more efficient host access for workstation users who will not have to compete with other devices using the FDDI ring.

“This setup allows your Ethernet work groups running bandwidth-intensive applications, such as imaging and CAD/CAM, to function at a higher level,” said

Bill Panepinto, vice-president of marketing and sales for Fibronics' KNET Business Group. “It saves you the expense of providing each workstation with an FDDI connection.”

The FX8610 can accept any combination of the two new channel cards, as well as the existing CC8612 10Base-T card.

Each card has two ports, so the server can be used to connect as many as 12 hosts over a 10M bit/sec 10Base2 or 10Base5 link.

Those hosts can include a wide range of devices, such as file servers, Digital Equipment Corp. VAXes and other minicomputers. According to Panepinto, users are deploying the FX8610 to create host clusters.

The company also provides a repeater option with the 10Base-T card that enables the user to create four 10Base-T attachments out of a single port, meaning that as many as 48 Ethernet workstations can be supported if six CC8612 cards are used.

The two new channel cards are available now and cost \$1,900, the same price as the existing 10Base-T card. The FX8610 costs \$17,900 and includes 1M byte of memory. ■

WHY KEYCORP IS BRANCHING OUT WITH GDC.

With branches reaching from Fort Kent, Maine, to Dutch Harbor, Alaska, KeyCorp – “America’s neighborhood bank”SM – is one of the fastest-growing financial institutions in the U.S. Whenever KeyCorp adds another branch to the 730 Key Bank offices it already has, it relies on GDC to help quickly achieve “backroom standardization.”

KeyCorp managers consider their communications network a major strategic asset. And they know it’s vital to get each new bank integrated as quickly as possible. That’s why they turn to GDC, their strategic partner for networking products, services, and support.

KeyCorp planners have standardized on GDC analog and digital access products. For their backbone network, they use the GDC Transport Management System. And their entire network is managed by a GDC Integrated Network Management System.

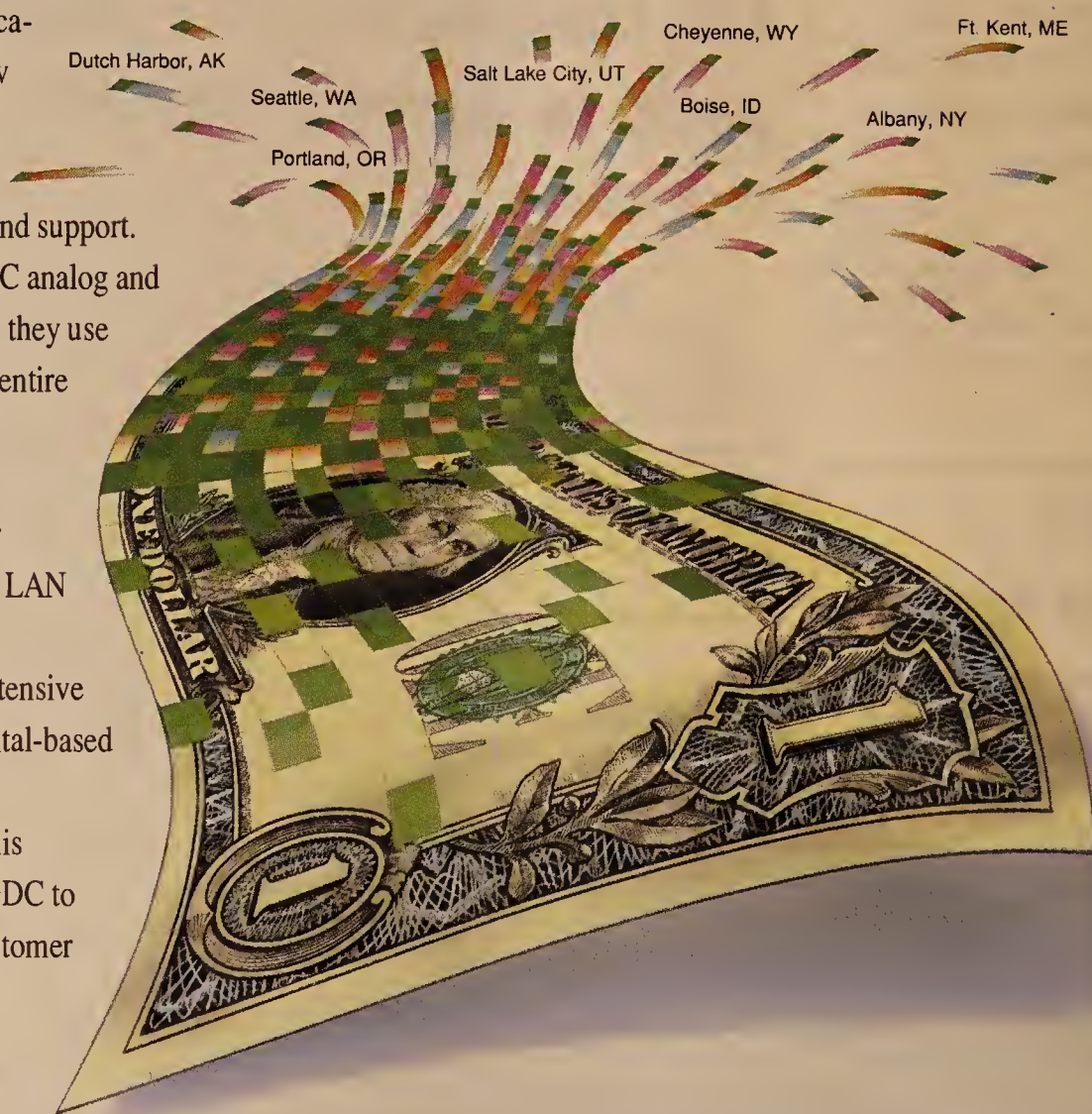
GDC supports LAN-to-WAN connectivity for internetworking of all KeyCorp offices. Each includes LAN traffic, voice, image, and other data applications.

GDC is also helping KeyCorp convert its extensive regional data enterprise network from analog- to digital-based technology.

Through its 6-year partnership with GDC, this innovative financial services company has utilized GDC to help lower costs, speed up performance, enhance customer service, and improve its edge in a highly competitive banking environment.

KeyCorp has found that GDC has the right products, the right network architecture, and the right vision to offer a reliable migration path to the communications technologies of the future. We think you’ll find the same.

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Chipcom unveils mgmt. modules

continued from page 21

fault tolerance and port security plus the ability to download software from a server.

Its fault-tolerant capabilities include Cross-Module Redundancy, which lets users specify any port as a backup to a different port on another Ethernet module in the hub.

Previously, a port designated as a backup port had to reside on the same module as the failed port, said Bob Sheppard, product manager at Chipcom.

A second feature, Cross-Media Redundancy, enables a net manager to assign ports of different media types as backups to each other.

A 10Base2 thin-wire port, for example, may be backed up by a fiber-optic port. Cross-Media Re-

dundancy requires that both ports reside in the same concentrator.

A new security feature with the Advanced EMM allows a net manager to automatically shut down any port in the network if the transmitting address suddenly changes.

The Advanced EMM also provides the capability to download software from a central server using the File Transfer Protocol, allowing all EMMs to be upgraded simultaneously. Once downloaded, the software is stored in the module's erasable programmable read-only memory, which makes it available even after a power failure.

"This is a convenient feature because users may have 40 or 50 of these modules stuck in wiring closets throughout their facilities," Sheppard said. "A net manager simply has to load the new

file onto a server and then at the remote locations, log in to each of the EMMs and give one command to have all the EMMs perform the inband download at the same time."

All the EMMs have an RS-232 port that enables them to be managed via an ASCII terminal. Dial-up modem connections are also supported.

Both the Basic and Starter models are field-upgradable to the Advanced version via software.

The Starter, Basic and Advanced EMMs will be available by the end of this month and are priced at \$1,995, \$2,995 and \$3,800, respectively.

Current EMM users can purchase the Basic software upgrade for \$250 per node. Upgrades to the Advanced EMM are priced at \$850 per node or \$6,000 for a package of 10. ■

Netnotes

continued from page 17

puter, Inc. Macintosh-based network traffic monitoring system.

The new system consists of hardware and software. The hardware portion, called the NetScope Probe, connects to a LocalTalk or Ethernet segment and gathers information such as bandwidth usage and error rates from that segment.

The software portion, called the NetScope Console, collects this information and displays it in a graphical format. The NetScope Console runs on any Macintosh on the network.

The system is available now for \$899.

McAfee Associates unveiled a Novell, Inc. NetWare-specific virus protection package. Called NetShield 1.0, the new software is a NetWare Loadable Module (NLM) that blocks viruses from being transmitted over a network by scanning files as they are accessed from the server.

According to McAfee, based in Santa Clara, Calif., the software also performs regularly scheduled scanning of the server on a daily, weekly or monthly basis, whichever the administrator specifies. It also provides different options for handling infected files, such as deleting them or transferring them to a private directory.

NetShield is available now at \$495 per server. A corporatewide unlimited server license is available for \$30,000.

TechWorks, Inc. of Austin, Texas, has shipped an update to its GraceLAN Update Manager for Macintoshes. Update Manager 1.1 ships with two new applications, Install Watcher and Update

Trigger, both designed to more completely automate complex updates.

Install Watcher can translate installation packages created with Apple's Installer — which only works locally — into scripts that Update Manager can execute over the network. The application saves administrators the tedium of building installation packages themselves.

Update Trigger launches the Update Manager application on an administrator's machine when, for example, an update is scheduled after hours but the application is not running.

Other improvements include the ability to update files and folders in use at the time of the update when those files or folders become available later. It also has a "Delete all occurrences" option, which will delete all iterations of a file, folder or application, instead of just the first one the program finds.

GraceLAN Update Manager 1.1 costs \$295 for a single zone and \$495 for an unlimited number of zones. The update is free to owners of previous versions.

Novell adds CNA to its stable

continued from page 17

said. "There are many people out there that are much brighter than those who are becoming CNEs but who don't have \$5,000 to be certified. That makes it harder to break into the networking field."

CNA certification requires that students take two courses and pass a \$70 certification exam from a Novell Authorized Education Center. Certification for NetWare Version 2.2 and 3.11 will be offered separately.

The two courses necessary for

Windows users now have another option for using AppleTalk network services, thanks to **Co-Operative Printing Solutions'** introduction of COPSTalk for Windows.

The \$179 software includes the drivers and interfaces necessary for Microsoft Corp. Windows users to log on to AppleTalk Filing Protocol-compatible servers in order to print documents.

COPSTalk's WinChoose, a knockoff of Apple's Chooser, lets users connect to printers and servers through an iconic point-and-click interface.

The software can also pool printers, allowing users to send print jobs to the first available printer in the group. Print queuing software lets users see where jobs are in the queue and reprioritize or hold a job.

The software also lets users log on to both a LocalTalk and EtherTalk network simultaneously. It supports LocalTalk cards from DayStar Digital, Inc., Farallon Computing, Inc. and 3Com Corp. It comes with tools for installing fonts and dealing with PostScript printers. ■

a CNA designation — "NetWare System Manager" and "Advanced System Manager" (for both Version 3.11 and 2.2) are available from Novell-certified education centers and by videotape and computer-based training packages from Novell.

The total cost of classes for Version 2.2 is \$1,590 and for Version 3.11, \$1,890. Users can sample these courses for a fee but may also need to take the prerequisite courses "DOS for NetWare Users" and "Microcomputer Concepts for NetWare Users" if they do not already have a grounding in these areas. ■

Link Notes

continued from page 21

hub's SNMP features.

The EtherTwist Hub/12 is available now and is priced at \$1,195. The software upgrade costs \$699.

Network Technology (NAT) last week announced that **JWP Information Services**, a systems integrator, would be carrying NAT's entire line of network connectivity products, including local and remote Ethernet bridges, a remote Internet Protocol router and the NMS/100 Network Management System.

For more information on the agreement, as well as to obtain a complete list of included products, contact NAT at (408) 370-4300.

Optical Data Systems, Inc. (ODS) unveiled a remote token-ring bridge that offers high durability because it uses silicon chip-based memory, rather than rotating media memory such as floppy or hard disk drives.

Use of that technology enables the bridge to be used in environments with extreme tempera-

tures, such as in an extremely cold warehouse, the company said.

The ODS Solid State Token Ring Bridge supports two token-ring interfaces and two wide-area interfaces that operate at speeds up to 2.048M bit/sec. It has a throughput of 14,350 packet/sec and supports the Source Routing Protocol.

The bridge comes in a modular version, the ODS 294-8107-SS, which can be used within any of ODS' 29X series of hubs. It also comes in a stand-alone version, called the ODS 8107-SS.

Both versions are currently available and are priced at \$12,000.

In order to obtain additional information, call ODS at (214) 234-6400.

Synernetics, Inc. last week announced it has signed a multi-million-dollar reseller agreement with the E-Z Interface division of Antipodes, Inc.

Under the terms of the agreement, E-Z Interface will resell Synernetics' LANplex 5000 switching hubs and Interplex bridge/routers.

For more details, call Synernetics at (508) 670-9009. ■

Moses commands NetWare support

continued from page 17

Mass., office of Computer Intelligence, based in La Jolla, Calif.

With this in mind, Moses Computers' Berko said the release of MosesNodes will signal the entrance of his company into a new, higher end market.

"We've focused on small businesses until now — universities, classrooms, doctors' and lawyers' offices, and small work groups," he said. "MosesNodes will put us in the Fortune 500 market for the first time."

According to Berko, the primary advantage of Moses Computers' products in remote and work group environments is

price. Other net operating systems can cost \$1,500 per node, he said, compared with a price tag of about \$60 per node for the most expensive Moses product.

In addition, Moses Computers' products run on ordinary telephone wire, often eliminating the need to rewire and providing a further cost savings.

All of Moses Computers' products are based on the company's proprietary operating system and adapters, although the operating system is compatible with DOS and Microsoft Corp. Windows applications but not Ethernet and token-ring LANs.

All of the products are designed to run in a physical star topology, providing point-to-point links between each node. ■

Users can get Net SatisFAXtion

continued from page 17

ers send faxes through the print command in Windows applications. According to Reynolds, it offers a more advanced graphical user interface than the previous Windows client, which Intel licensed from a third party. The new client also lets users who fax from both DOS and Windows share a single address book.

Version 2.0 lets administrators attach a billing identification to user names so usage can be billed back to a particular department. The server keeps a log of

transactions that can be imported into a spreadsheet program.

"We found that was a pretty important feature for large corporations," Reynolds said.

Also, the printing speed of incoming faxes has been improved up to six times over that of the previous version, the company said. And the new software supports up to eight modems. It works with Intel's discontinued SatisFAXtion board modem, as well as the new SatisFAXtion Modem/200 and SatisFAXtion Modem/400, which are Extended Industry Standard Architecture-bus card modems that plug into the Net SatisFAXtion server. ■

**Justice Blackmun
and Justice Scalia
are at opposite
ends of the bench.
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a way to bring
them together.**

Chances are, these distinguished U.S. Supreme Court Justices will have contrasting opinions on many issues. However, there's one thing we hope they would rule overwhelmingly in favor of: protecting the right to communicate freely and without obstruction. It's something all of us at N.E.T. feel very strongly about. Which is why we're developing innovative networking products that help you move information down the corridors of power or around the globe. So no matter where in the world you are—left, right or somewhere in between—N.E.T. can bring us all together.

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GLOBAL SERVICES

DOMESTIC AND INTERNATIONAL VOICE/DATA SERVICES, ACCESS EQUIPMENT AND REGULATORY ISSUES

Worth Noting

The U.S. audio teleconferencing market will soar from \$1.4 billion in 1991 to \$3.54 billion in 1995, according to a recent study by Frost & Sullivan, Inc., a New York research firm.

Regulatory Update

The Federal Communications Commission recently threw out a petition that would have blocked two cable companies from purchasing a bypass carrier, clearing the way for cable television operators to buy non-dominant telephone companies.

The U.S. Telephone Association (USTA) had argued that Cox Enterprises, Inc. and Tele-Communications, Inc.'s proposal to purchase Teleport Communications Group, Inc. violated federal rules that bar cross-ownership of telephone and CATV operations in the same service area. Cox owns Staten Island Cable Co., and Teleport is headquartered and provides service in the same area.

In denying the USTA's petition, the FCC said cross-ownership rules apply only to dominant telephone companies.

The rules were intended to prevent monopoly telephone companies from denying CATV operators access to telephone poles and conduits needed to provide service.

The FCC became involved in the issue because it had to approve the transfer of three microwave licenses held by Teleport to the two new owners.

The Teleport deal must still be cleared by state regulators. ■

State telecom managers battle sluggish economy

Meet to discuss ways to get through hard times.

By Anita Taff
Washington Bureau Chief

BALTIMORE — State telecommunications directors from across the country met here last week to exchange information and plan strategies to combat shrinking budgets and worrisome regulatory issues.

At the 15th annual meeting of the National Association of State Telecommunications Directors (NASTD), government users said that one of the most pressing issues they face is the slow economy. They are left with fewer dollars to spend and smaller staffs for providing telecommunications services to state agencies.

This has triggered a new interest in participating more actively in the regulatory process to head off decisions that could further drain state telecommunications budgets, according to Robert Dixon, president of NASTD. High among regulatory concerns discussed by the state users were upgrade of the local loop and forced relocation of microwave nets.

Investment in the local loop has become an increasingly difficult funding issue as telephone companies begin to deliver sophisticated services that could help the states. For example, Dixon said many states are interested in videoconferencing as a way to increase the efficiency of state

government, make public records more accessible and deliver services.

However, many of the public services under discussion require advanced technologies. There are several thorny issues, however, concerning who should foot the bill for the network investment and how uniform network capabilities will be from one area of the country to another.

According to William Miller, secretary/treasurer of NASTD, and Dixon, federal officials might be able to help ensure uniformity by setting minimum standards. But Miller added that most state telecommunications directors now are working primarily with local officials.

"It might be nice to have some federal standard [on local loop technology], but I don't know when it would come, and we can't afford to sit around and wait," Miller said.

Another major issue of concern to the state telecommunications directors is the possibility that they will have to change their microwave networks, which are widely used to support public safety operations, in order to support new frequencies. The Federal Communications Commission has proposed moving the microwave nets to make way for emerging technologies. ■

GSA creates first SMDS user group

By Bob Wallace
Senior Editor

SAN FRANCISCO — The General Services Administration — the first paying Switched Multi-megabit Data Service (SMDS) customer — is founding a user group for organizations that use or plan to use the high-speed data service.

The SMDS Users Group, the first SMDS user association, will hold its inaugural meeting here Oct. 27 in conjunction with the INTEROP 92 Fall conference, which runs from Oct. 26-30. The

meeting will be held from 1 to 5 p.m. at the PARC Fifty Five Hotel.

At the meeting, Bell Communications Research will deliver an SMDS overview and future directions presentation that discusses network management, the service's local management interface and SMDS' relation to Asynchronous Transfer Mode (ATM).

Pacific Bell will hold a tariff discussion in which it will detail issues that may impact a firm's decision to purchase SMDS. The Bell operating company also said it will help outline a timetable for user adoption of the service.

The meeting will feature a user panel discussion designed to identify and address SMDS issues.

Although there is no registration fee, users must return a registration form by Oct. 9 to attend. Call Anne Ferris at (415) 962-2570 for more information. ■

Sample of a fully meshed frame relay network

Committed information rate:				
Location (permanent virtual circuit)	Speed (bit/sec)	4K rate increment	Monthly cost	Installation cost
Vancouver to Toronto	16K	\$183	\$732	—
Vancouver to Montreal	16K	185	740	—
Vancouver to Ottawa	16K	187	748	—
Ottawa to Toronto	16K	81	324	—
Ottawa to Montreal	16K	60	240	—
Ottawa to Toronto	40K	93	930	—
Subtotal			\$3,714	—
Framework ports:				
Location	Ports	Monthly cost	Installation cost	
Toronto	1	\$200	\$250	
Ottawa	1	200	250	
Montreal	1	200	250	
Vancouver	1	200	250	
Subtotal			\$800	\$1,000
Frame relay access:				
Location	Speed (bit/sec)	Monthly cost	Installation cost	
Toronto	56K	\$501.25	\$350	
Ottawa	56K	330.00	350	
Montreal	56K	507.50	350	
Vancouver	56K	320.00	250	
Subtotal			\$1,658.75	\$1,300
Total			\$6,172.75	\$2,300

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: NATIONAL TELECOM CORP., TORONTO

Canadians get first taste of frame relay

Nat'l Telecom offers public service to users in four major cities, plans to expand it at a 'fast clip.'

By Bob Wallace
Senior Editor

TORONTO — National Telecom Corp. last week began offering to users in four Canadian cities a public frame relay service based on StrataCom, Inc. fast packet-based T-1 multiplexers.

National Telecom said it is the first Canadian carrier to roll out a public frame relay network service. Its Framework offering is available here and in Montreal, Ottawa and Vancouver.

"We found a great deal of customer demand for frame relay and decided it was crucial to be first to market with a frame relay service," said Tim Lambie, manager of integration services for National Telecom.

To support Framework, National Telecom installed one StrataCom IPX switch in each city and linked them using fiber lines leased from other Canadian carriers, creating a fully meshed network.

Lambie said the carrier will extend Framework to Calgary in 45 to 60 days and is considering broadening service availability to all major and most secondary Canadian cities in the next year.

"We'll decide the time frame

and the cities that will get Framework based on customer demand," he said. "But we expect to continue adding cities at a fast clip."

National Telecom's public frame relay service supports a variety of access port speeds, including 56K/64K, 128K, 256K, 1.024M and 1.544M bit/sec.

Committed information rates — the minimum guaranteed bandwidth available to end users — range from 4K to 512K bit/sec in 4K increments.

Lambie said National Telecom will test customer premises equipment, such as routers, for compatibility with Framework on a customer-by-customer basis.

The carrier is unsure if and when it will provide customers with tools to manage the service. U.S. frame relay users have long bemoaned the lack of even rudimentary network management capabilities.

Framework is sold on a monthly basis or under term plans ranging in length from one to 10 years, each with a volume discount. For example, users that commit to \$1 million of annual usage over 10 years receive a 45% discount, Lambie said. ■

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Worth Noting

“If we start to build all our new applications using open systems tools, we will still be using most of our current applications in 15 years.”

Paul Pinson

Open systems director
E.I. du Pont de Nemours & Co.
Wilmington, Del.

Store & Forward

Lotus Development Corp. last week announced that cc:Mail has garnered 49% of the international local-area network-based electronic mail market. The market share figures were calculated through analysis of Lotus' internal data and second-quarter statistics from the Software Publishers Association.

There are nearly two million cc:Mail seats installed worldwide, according to Lotus officials.

The **SNAP Software Group** said it will ship client/server software this month that integrates marketing, sales and service functions.

SNAP for Windows provides contact management, strategic account planning, sales forecasting and messaging capabilities. It runs on personal computers and works with multiple relational database management systems, including Gupta Technologies, Inc.'s SQLBase, Oracle Corp.'s Oracle Server and Sybase, Inc.'s SQL Server. Pricing was unavailable.

NCR Corp. and Independence Technologies, Inc. have teamed together to port NCR's Top End transaction processing monitor on several
(continued on page 33)

DG offers E-mail gateway to X.400, Internet worlds

Company also bolsters LAN-based office system.

By Wayne Eckerson
Senior Editor

WESTBOROUGH, Mass. — Data General Corp. has reinforced its move into local-area network-based computing with the introduction of a LAN-based E-mail gateway and a series of enhancements to its Windows-based LAN office system.

DG's MHS Gate for AViiON Systems enables users of Novell, Inc.'s Message Handling System (MHS) to exchange electronic messages with users on X.400 and Transmission Control Protocol/Internet Protocol networks.

“MHS users can now send E-mail off the LAN to Internet and X.400 users,” said Steve Karlson, product manager at DG.

MHS Gate runs on DG's AViiON Unix processor and works with DG's MHS for AViiON, which is a Unix implementation of MHS.

In addition to connecting with X.400 and TCP/IP messaging nets, MHS Gate provides an E-mail gateway between DG's Comprehensive Electronic Office

(CEO) and AV/Office office automation systems. CEO runs on DG's Eclipse minicomputers and AV/Office runs on the AViiON. The gateway also enables MHS users to exchange messages with users of DG's AV Object Office LAN-based office system.

Users of Lotus Development Corp.'s cc:Mail and WordPerfect Corp.'s WordPerfect Office can access MHS Gate via built-in gateways to MHS.

DG also announced Version 2.0 of AV Object Office, an AViiON-based office system that supports personal computer users with Microsoft Corp. Windows. AV Object Office enables Windows users to access Unix applications on the AViiON server.

Version 2.0 supports Windows 3.1 and Hewlett-Packard Co.'s NewWave 4.0 user interface. It also provides integrated inbound and outbound facsimile communications via GammaLink, Inc.'s fax server for Novell MHS LANs.

The new version also provides
(continued on page 33)

UniKix pack enhanced, supports Oracle, Informix

By Wayne Eckerson
Senior Editor

SAN FRANCISCO — Integris, the systems integration arm of Groupe Bull SA, announced at Digital Consulting, Inc.'s recent Downsizing Expo here that its UniKix transaction processing software now supports relational databases from Oracle Corp. and Informix Software, Inc.

UniKix aids in downsizing by enabling users to run IBM host applications on Unix machines. The enhancements allow users to move CICS/DB2 applications onto Unix processors supporting Oracle or Informix databases.

“Our objective is to add support for all leading mainframe and Unix databases,” said David Matthews, vice-president of downsizing at Integris, based in Phoenix.

Matthews said Integris will announce support for more databases during the next several months, possibly including rela-

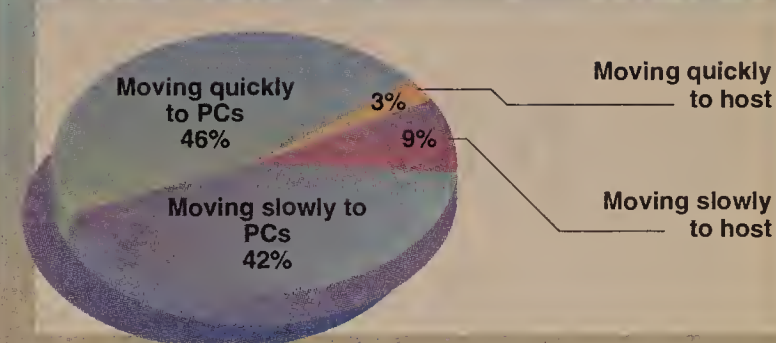
tional databases from Sybase, Inc. and Ingres Corp., as well as IBM IMS and Computer Associates International, Inc.'s IDMS host databases.

A beta-test site for the UniKix enhancements, Sprinks Insurance in Paris, said it was able to migrate IBM DB2 transaction processing applications to Oracle and UniKix in three weeks. Matthews said Sprinks will achieve a payback on its investment in less than 12 months.

According to Matthews, UniKix converts DB2 data into a flat file, which is then converted and loaded into an Oracle or Informix database. The process is automated, he said. UniKix allows users to access Oracle applications via IBM Systems Network Architecture connections using additional software from Integris.

Support for Oracle and Informix databases is available now at no extra cost. UniKix is priced at \$8,000 and up. □

The pace of downsizing



In a survey of 100 major corporations, 88% of respondents said downsizing to PC environments was under way, while 12% were staying with host-based applications.

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: BUSINESS RESEARCH GROUP, NEWTON, MASS.

Downsizing advice? Get nets in shape

Experts say networks must be reengineered to support new distributed, client/server systems.

By Timothy O'Brien
West Coast Bureau Chief

SAN FRANCISCO — Users are surging ahead with plans to port applications from hosts to PC networks, but analysts warn that corporate networks may need a major tune-up to keep these downsizing efforts from stalling.

At Digital Consulting, Inc.'s recent Downsizing Expo here, speakers said users too often overlook the need to reengineer networks to support new client/server or distributed applications. They said users need to bring some order to the sometimes chaotic multivendor, multi-protocol networks in place today.

“We all use the same phone system and drive on the same side of the street, so it makes a lot of sense that you start with a consistent network architecture before deploying these applications,” warned Larry DeBoever, managing director of Tucker/DeBoever Technologies, Inc. in South Norwalk, Conn.

While there has been widespread installation of personal computer local-area networks over the past few years, users have largely been concerned with finding a cost-effective way to share simple applications, electronic mail messages and resources such as printers and gateways in small departmental work groups.

Internetwork tools have linked LANs into the corporate network, and many users are exploring the possibility of redeploying expensive, host-based applications to these

distributed networks.

But the net infrastructures users have in place may not be robust enough to support these mission-critical, distributed applications.

Analysts point to a double-edged problem that can slow downsizing of core business applications. They said many network designers do not have a

“We all use the same phone system and drive on the same side of the street, so it makes sense [to] start with a consistent architecture.”

▲▲▲

good understanding of how applications will really behave in multiprotocol environments, over wide-area links or in client/server configurations. And they struggle to design networks that can support new types of applications.

That also holds true for application developers that are not used to factoring the complexities of networking into their design equations.

“This lack of knowledge on the part of network designers is only exceeded by the lack of knowledge of application development.”
(continued on page 33)

It's curious what passes for interoperable computer systems these days.

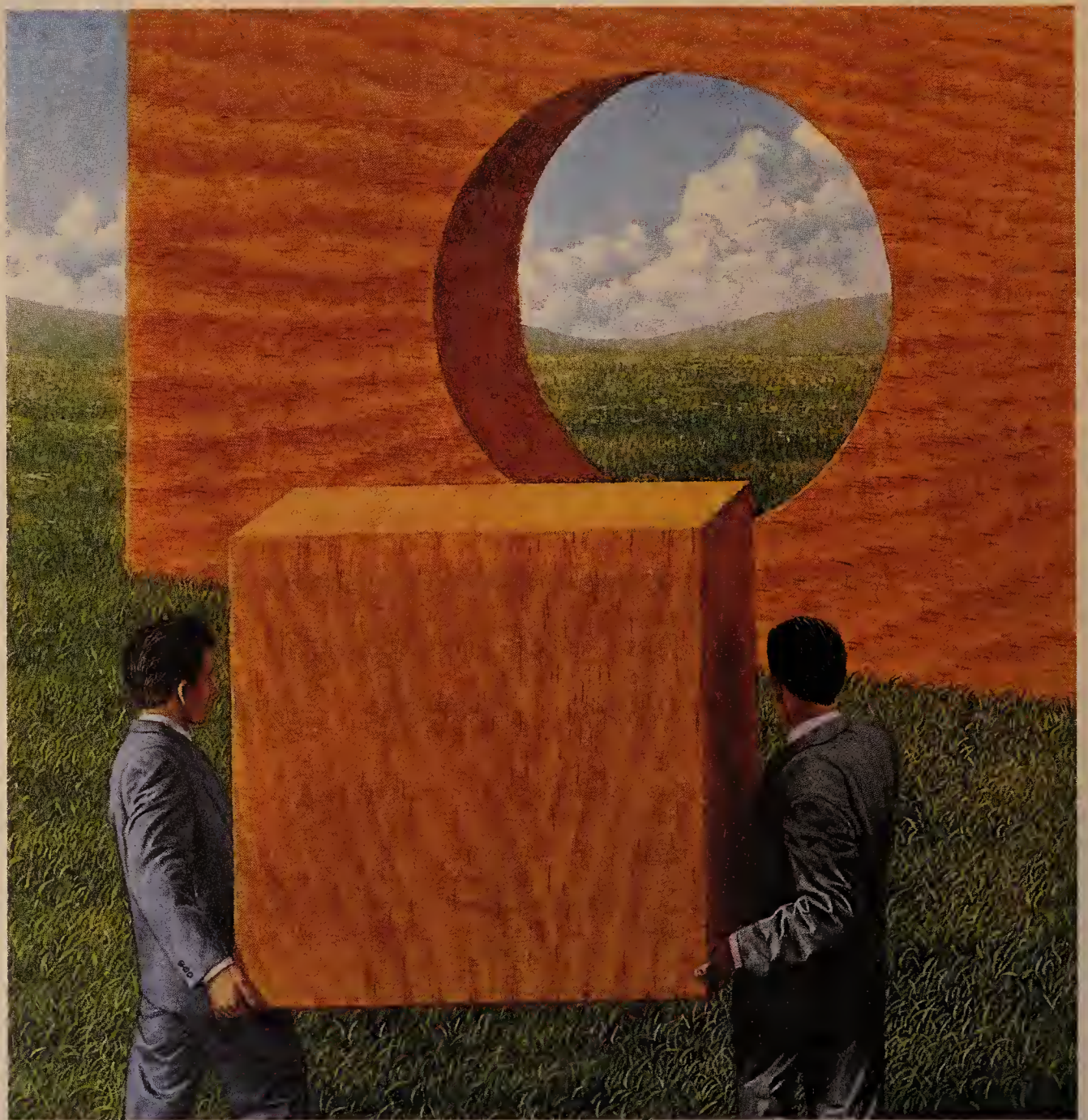
Lately, many computer makers are claiming, "Our systems are open." But their customers are asking, "Open to what? *Your* computer environment? Or ours?"

The point is well taken. Because computers should work with systems already in place, the customer's existing investment. And with systems yet to come, the customer's future investment. It's a big assignment—*interoperability*, enabling information to move freely across different computer environments.

Permit us to suggest a simple test. Ask your computer providers if their commitment to interoperability extends to a few of their offerings—or all of them. Ask if their commitment ends with UNIX® and PC operating systems—or anchors their systems architecture and corporate strategy. Total interoperability does not yet exist. But a total commitment to interoperability puts Unisys at the head of the industry—and gives our customers a head up on the competition.

Perhaps you hadn't realized that Unisys is a pioneer at delivering information solutions over open information networks. And among the first to appreciate that open systems are only one stop on the drive to interoperability.

"No supplier is doing more to respond to its customers' requirements for interoperability across an entire product line than Unisys," reports the Aberdeen Group. We've brought the



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Lambert, and more. It's all part of our focus on the customer. And a prime reason 60,000 Unisys customers in 100 countries rely on us for solutions to fit their needs. Not merely our own.

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INDUSTRY UPDATE

VENDOR STRATEGIES, MARKET TRENDS, ALLIANCES AND FINANCIALS

Worth Noting

Of the 18 private branch exchange vendors that ship more than 1,000 lines annually, only the top three — AT&T, Northern Telecom, Inc. and Rolm Co. — showed growth in the first half of 1992, according to the Eastern Management Group, a market research firm in Parsippany, N.J.

People & Positions

Kevin Brauer last week was named president of **Sprint Corp.**'s Business Market Group (BMG). He will be responsible for sales, customer support and marketing for the Long Distance Division's midsize and large business customers.

Previously, Brauer was vice-president of commercial sales for BMG.

David Dorman, president of the Long Distance Division's Major Accounts Group, which includes BMG, has been president of BMG for the past year but will give up that post to focus on national accounts.

Separately, Sprint announced recently that **Patricia Diaz Dennis** will leave her position as vice-president of government affairs to serve as Assistant Secretary of State for Human Rights and Humanitarian Affairs for the U.S. Department of State. She has represented Sprint before Congress. Before joining the carrier in March 1991, Dennis was a commissioner on the Federal Communications Commission. ■

Company offers 'bug-free' product testing services

Firm documents performance of certain software.

By Charles Bruno
Features Editor

SALEM, N.H. — Focus Software, Inc. this week will unveil a series of network software testing and evaluation services for users and vendors.

The rush to build enterprise-wide networks is leaving network specialists vulnerable to promises of "bug-free" products, according to Ugo Gagliardi, president of Focus Software, here.

While bug-free might sound impressive, "it's often an empty promise that wastes a phenomenal amount of time, money and resources," Gagliardi said. Corporate users with enterprisewide networks need documented evidence that the intended software will deliver an acceptable level of reliability, he added.

"Demonstrating the practical stability of various hardware and software configurations to be networked is far more feasible than implementing products and tangling with interoperability or other issues in production mode," he said.

Applications downsizing efforts have helped spur the grow-

ing demand for enterprisewide internetworks. When an organization's key activities become dependent on the network, ensuring complete interoperability becomes a critical concern.

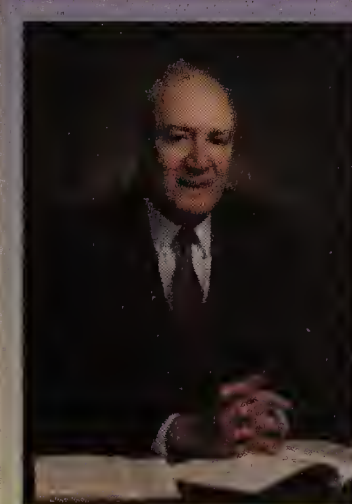
"We often work with clients preparing to implement a downsizing strategy," Gagliardi said. He has worked closely with several Fortune 100 companies to develop strategies to pursue innovative technologies and is also a professor at Harvard University, where he holds the Gordon McKay Chair in the Practice of Computer Engineering.

Multifaceted testing

Focus Software will provide architectural reviews of distributed processing services, evaluate whether a downsized application can achieve mainframe performance and quality levels, provide audits of development environments and methodologies, and investigate if applications development tools allow users to achieve the desired quality.

"By testing a prototype of a project design, we can identify

(continued on page 32)



"Both Windows and DOS reflect the technical shortcomings of an operating system that was never designed for the requirements of network use."

Ugo Gagliardi
President
Focus Software, Inc.

Maturing ATC may challenge Big Three

Recent moves, such as new billing system, may make the fourth-place contender more threatening.

By Bob Brown
Senior Editor

ATLANTA — Will there ever be a Big Four in the long-haul carrier market?

"I'd like to say that the Big Four are here now," says Stephen Raville, chairman and chief executive officer of Advanced Telecommunications Corp. (ATC), the fourth-largest publicly held long-distance carrier behind AT&T, MCI Communications Corp. and Sprint Corp.

It may be some time, however, before industry observers agree with that statement, as even Sprint, the third-largest long-haul carrier, dwarfs ATC. Sprint posted long-distance revenue last year of more than \$5 billion, while ATC's merger with regional carrier LDDS Communications, Inc. in June created a company with about \$620 million in revenue ("Regional long-haul carriers merge in \$560m stock swap," *NW*, June 8).

All the right moves

But the company seems to be making the right moves to break into the top tier of carriers.

ATC's service portfolio includes offerings that are competitive with those from the Big Three, such as its virtual network service, and other products such as its feature-rich OnLine calling card, which many observers believe is better than rival offerings.

At the beginning of the year, ATC established a national accounts program in an effort to move beyond its small and mid-

size business customers and target large accounts — those that spend at least \$25,000 a month on service — pursued by AT&T, MCI and Sprint.

The program is already helping the company land big accounts.

Last month, for example, ATC announced that it had been awarded a five-year, \$6 million contract with First Union National Bank in North Carolina to provide private-line and other services.

"Publicizing our big wins is a two-edged sword," Raville said. "We gain market awareness, but our competitors find out what we're up to."

Perhaps the most significant effort to target large users has been the implementation of a new customer billing system designed in conjunction with EDS Corp., Raville said. The new system is more flexible than the old one and enables ATC to offer users billing options that include consolidated bills for those who qualify for multiproduct and multisite discounts.

"A year ago, we didn't have the billing system or new products in place to win national accounts," he said.

In other moves, the company has increased the number of states in which it has points of presence from fewer than 30 to nearly 40, thanks in large part to the merger with LDDS. ATC directly serves the Southeast, Southwest, Midwest and New En-

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INDUSTRY BRIEFS

Electronics trading up. The Electronic Industries Association reported that the U.S. exported \$38 billion in electronics products for the first half of this year, up nearly 4% from last year's record exports of \$36.5 billion for the similar period. But imports reached \$40.5 billion, up 13.3% over last year's first-half figures, creating a trade deficit of \$2.59 billion.

The U.S. exported \$683 million more worth of communications products than it imported, but that figure was down 11.9% from the \$775 million recorded for the first half of 1991. Computers and peripherals accounted for a \$382 million positive balance, down 82.6% from the \$2.21 billion positive trade balance recorded for the corresponding period in 1991.

Racotek, Norand team on wireless effort. Racotek, Inc., a Minneapolis provider of wireless data communications services and equipment, announced that Norand Corp. has integrated Racotek's remote procedure call application program interface into its Norand 4000 series of hand-held computers and Pen*View pen-based products. The collaboration allows mobile users of the Norand devices to continuously receive sales and distribution information via Racotek's wireless net.

Racotek also announced an agreement with Advanced MobileComm, Inc. (AMI), a Boston specialized mobile radio service provider, under which AMI will offer Racotek's data services via AMI's trunked radio systems for voice. ■



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AT&T

The right choice.

'Bug-free' testing services offered

continued from page 29

potential difficulties early in the process," he said. "We can also suggest redesigns and work-arounds, and eliminate the need to discard a solution after it's already been rolled-out."

Focus Software has also agreed to conduct a series of interoperability tests with *Network World* on various net software products (see "Interoperability target of NW, Focus testing," this page).

With downsizing, corporations are linking millions of personal computers over local- and wide-area networks. MS/DOS, and more recently, Microsoft Corp.'s Windows and Novell, Inc.'s NetWare — which are used to run the majority of these systems — are a major cause of the most persistent problems and the serious instability in networked environments, according to Gagliardi.

He contends that many managers will come to realize that DOS and Windows are

Interoperability target of NW, Focus testing

Network World is teaming up with Focus Software, Inc. to conduct a series of network software interoperability tests over the coming year.

The tests will evaluate network-based software and applications, exploring the interoperability issues users must address in popular network environments. The results will be written up in a series of exclusive features slated for publication in the next 12 months.

The first of these network tests will focus on E-mail interoperability issues and will be featured in the Oct. 26 issue of *Network World*.

"Network users want to know how products react in typical network environments," said John Gallant, *Network World's* editor. "Focus Software's tests will address real-life situations users contend with every day by creating common network scenarios employed by users."

Ugo Gagliardi, founder and president of Focus Software, said the joint tests will provide users with technology insights users may be hard-pressed to get on their own.

"Network testing is exponentially more complex than it used to be because so many vendors' products are involved," Gagliardi said. "Few corporate customers can afford to equip, staff and maintain their own labs with the level of detail and experience that has become essential for accurate results."

Of Focus Software's relationship with *Network World*, Gagliardi said, "We are in a position to work to strengthen quality assurance practices and to establish effective testing methodologies."

— Charles Bruno

fundamentally unsuitable operating systems for networked environments. DOS cannot protect programs on the network from bugs in other applications because it does not provide a protected mode of operation.

Focus Software has its own expansive testing facility here. The company touts an exhaustive list of hardware and software products that it can bring to bear on network testing. Pricing for Focus Software's services varies, depending on the degree of testing required. For more details, call the company at (603) 890-1000. **Z**

Maturing ATC may challenge Big Three

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gland, and has agreements in place with other carriers, such as MCI, to serve the rest of the U.S.

Raville said the company is trying to retain its small-company feel as it grows. ATC is stressing qualities such as customer service, which is sometimes spotty at larger organizations, he claimed.

Jeffrey Kagan, president of Tele Choice Consulting, Inc., an Atlanta consulting

firm, said even though ATC is "the cream of the crop" among smaller long-haul carriers, it will still have difficulty taking business from the Big Three carriers. "The Big Three don't give up customers easily," he said. "Even where ATC wins, they'll wind up with razor-thin profit margins."

Meanwhile, ATC needs to watch the back door, Kagan said. While ATC has added emphasis to national account sales, the Big Three have started going after small and midsize business accounts — ATC's bread-and-butter business — more aggressively, he said. **Z**



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MEGABYTE*

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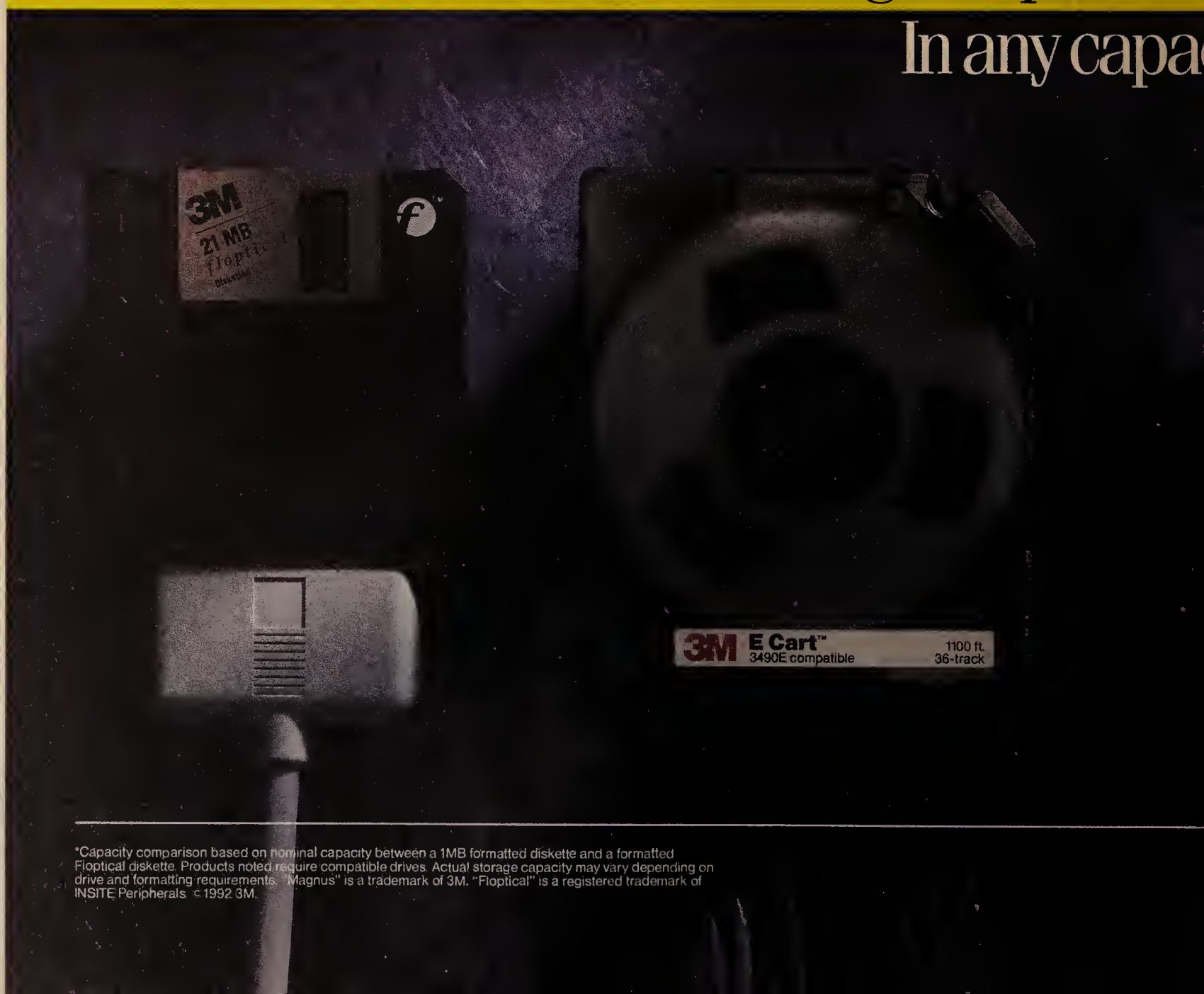


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DG offers gateway to X.400, Internet

continued from page 27

alias message names and mailing list names to support integration with MHS Gate. The alias naming feature enables users to create easily remembered names that represent complicated X.400 or Simple Mail Transport Protocol addresses. The mailing lists enable users to store predefined sets of addresses, such as aliases or names from a global directory.

In addition, AV Object Office supports

Windows-based terminal emulation for accessing character-based Unix applications. It also provides Novell NetWare file and print services, and enables systems administrators to download software from the AViON server to Windows PCs on an MHS LAN.

MHS Gate for AViON is priced at \$995 per server with unlimited users. AV Object Office 2.0 is sold in eight-, 16-, 32-, 64-, 128- and 250-user models. Prices range from \$3,495 for the eight-user model to \$65,495 for the 250-user model. Both products will be available in October. **■**

Downsizing advice? Get nets in shape

continued from page 27

opers regarding networking," DeBoever said.

Keeping nets healthy

Analysts at the conference made several suggestions to users for giving their networks a clean bill of health.

First, users should make some hard choices on the types of products and standards that will be used in building a net-

work infrastructure and enforce these guidelines so that new applications can be more easily deployed and debugged.

They also suggested that network planners give estimates on the high side when trying to determine the traffic patterns a downsized application will exhibit in an enterprise network environment.

Both client/server and distributed applications do not place the same demands on the network as do traditional terminal-to-host systems or file-sharing applications.

"Network designers usually have to reverse-engineer current networks to support increased bandwidth," said John Dunkle, president of WorkGroup Technologies, Inc. in Hampton, N.H.

In addition, speakers encouraged users to ensure efficient LAN interconnection by providing adequate integration of LAN-based applications, as well as host-based data repositories and messaging facilities.

"In planning for the '90s, there are three critical network functions — planning, design and network management," Dunkle stressed. "In terms of downsizing and distributed applications, you have to have a clear plan. If you don't know where you are going, any road will take you there."

Finally, users with diverse, heterogeneous networks should consider an emerging type of software called middleware, which acts as an insulating layer between the application and operating systems, transport facilities and other underlying network components.

Middleware products are designed to run on many platforms, providing a common interface for applications and shielding users from the complexity of the enterprise network.

But most of all, they urged users to make network infrastructure a key factor in downsizing decisions.

That's a point well taken for Donna Tirado, downsizing project planner at Honda North America in Torrance, Calif. "As we are planning a major downsizing effort, we are taking steps to ensure that all the pieces are in place — not just the software, but also the network," she said. **■**

Store & Forward

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Unix platforms: Hewlett Packard Co.'s HP 9000, Sun Microsystems, Inc.'s SPARC-servers, IBM's RISC System/6000 and Pyramid Technology Corp.'s MIServer. The transaction monitor will be available on the HP 9000 system this month, while the other platforms will be out early next year.

Burlington, Mass.-based Cognos, Inc. recently introduced an enhanced version of its PowerHouse fourth-generation language for Data General Corp. Eclipse/MV minicomputers running the AOS/VS operating system.

PowerHouse Version 6.05 offers terminal users a graphical user interface with pop-up windows, pull-down menus, scrollable fields and full color.

The new version, which also runs on a variety of mainframe, minicomputer and Unix platforms, is shipping now. Pricing starts at \$8,000. **■**



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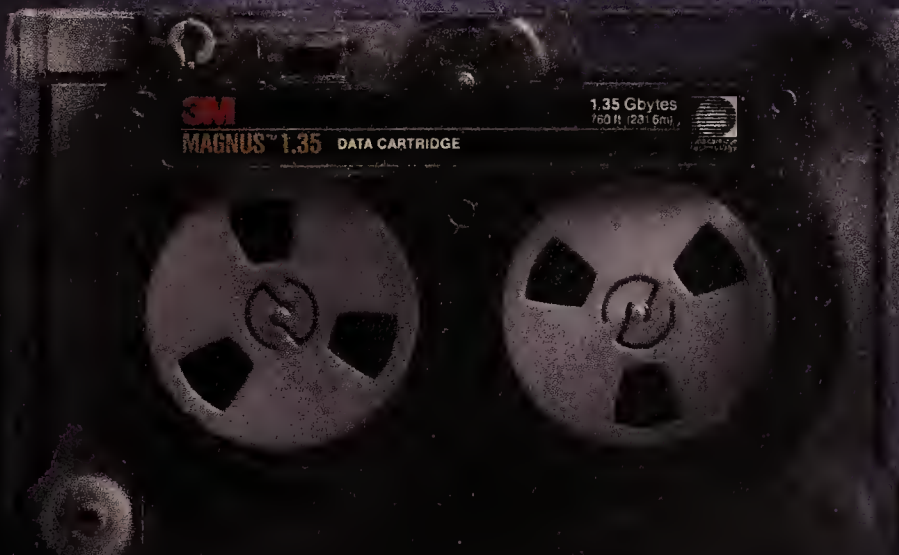
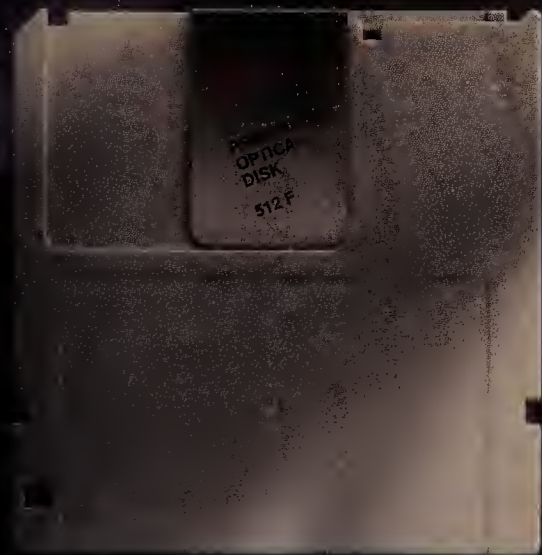
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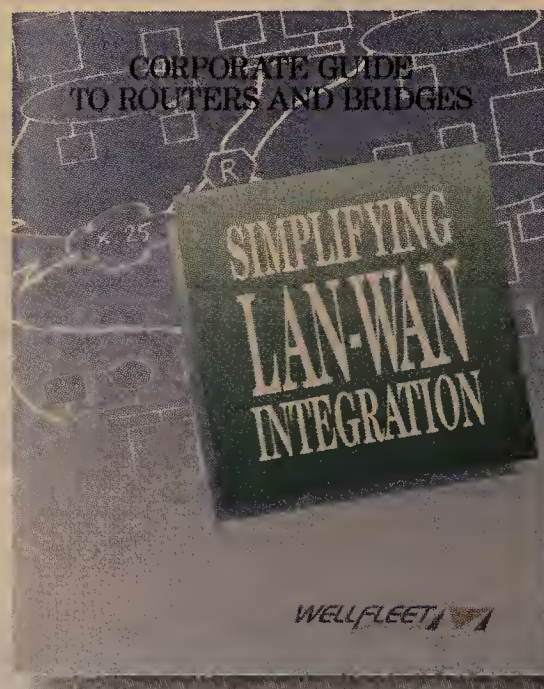


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MANAGEMENT STRATEGIES

MANAGING PEOPLE AND TECHNOLOGY: USER GROUPS AND ASSOCIATIONS

Worth Noting

“There’s a sense of stability in going with the big-name companies like Microsoft, Lotus and Borland. But then again, that’s what we used to think about Wang too.”

Allan Elkowitz
Director of information technology
Children’s Hospital
Boston

Manager Minutes

The 15th National Computer Security Conference, sponsored by the **National Institute of Standards and Technology** and the **National Computer Security Center**, will be held Oct. 13-16 at the Baltimore Convention Center.

For more information, contact Tammie Grice at (301) 975-2775.

Users of telecommunications services from Mercury Communications, Ltd. recently formed a user group called the **Mercury Users Association (MUA)**. The MUA’s charter is to enable member companies to share applications and expand their knowledge of services.

The group is chaired by Simone Kessler, development director of Cornhill Publications in London.

According to Kessler, the group will meet quarterly to discuss topics from a management, technical and business application perspective.

The next meeting of the MUA will take place Sept. 10 in London, with scheduled topics to include billing issues.

For more information, contact Kessler at (071) 250-1515. □

CDDI breathes life into FDDI standard

Implementing FDDI over copper reduces the cost of the technology and provides high performance.

By Bruce Schneier
Special to Network World

Why should anyone care about Fiber Distributed Data Interface (FDDI) anymore?

Wiring an office with fiber is expensive, as is purchasing fiber-optic switching and relay equipment. And with Asynchronous Transfer Mode (ATM) on the horizon, which promises flexible data rates of 150M to 600M bit/sec, FDDI’s 100M bit/sec data rate hardly seems worth it.

But the recent emergence of FDDI over copper wiring under the evolving Copper Distributed Data Interface (CDDI) standard changes all that. CDDI has breathed life into the protocol and given network managers a new option for wiring high-performance data networks.

“FDDI over copper has promise,” said Bob Olsen, vice-president of marketing at MultiMedia Networks, Inc., an ATM start-up in Lexington, Mass. “ATM will go to the desktop eventually, but CDDI is good in the short term.”

Olsen said the increased number of users on today’s networks and the increase in workstation computing power, combined with the rise in groupware applications and graphics-intensive applications, are all contributing to network congestion.

Users in data-intensive environments have tried to solve performance problems by segmenting their networks into smaller work groups. But even with a full 10M bit/sec of bandwidth, many high-performance users experience bottlenecks.

“With FDDI over copper, you can put a bunch of power users together and provide a high-performance, compute-intensive environment at a reasonable cost,” Olsen said.

Users agreed. “FDDI over copper is a good low-cost solution for our networking applications,” said Jim Ray, principal engineer at Harris Semiconductor Corp. in Palm Beach, Fla. “We have a large installed base of twisted-pair cable, and we can install FDDI quickly without having to spend money pulling fiber.”

That’s not to say that FDDI us-

ers will experience full 100M bit/sec bandwidth, whether over fiber or copper.

“Anyone who thinks they’re going to get 100M bit/sec sustained is looking at the wrong technology,” Ray said. “The CPUs are not fast enough to drive it yet. Still, it’s the only way to get data transfer at anything close to disk transfer speeds and still have bandwidth left over.”

On the downside, a standard for CDDI has yet to be established. Thus, vendors are building products to conflicting CDDI schemes, which may slow user acceptance of the technology.

For example, Crescendo Communications, Inc., the first company to ship CDDI products, bases its wares on a scheme that is designed for unshielded twisted-pair media.

Another CDDI faction, a consortium of 11 companies including Advanced Micro Devices, Inc., IBM, Motorola, Inc., National Semiconductor Corp. and SynOptics Communications, Inc., recently announced its own specification for supporting the technology over shielded twisted-pair wiring.

“If someone wants to implement a reliable FDDI link over shielded twisted pair, there are multiple vendors with products that interoperate using this specification,” said Nick Schommer, product marketing manager at SynOptics and cochairman of the FDDI Solutions Showcase at the upcoming INTEROP 92 Fall show.

For example, IBM recently announced a set of FDDI and CDDI products based on this specification.

But eventually, a CDDI standard will be set, which should spur use of the technology. In June, the ANSI X3T9.5 subcommittee chose a coding scheme for CDDI, called MLT-3, which marks the first step in building a standard for FDDI over copper. The subcommittee plans to have the first draft of the standard ready for its October meeting. □

Schneier is a free-lance writer based in the Chicago area.

CDDI: a cost-effective net solution

Network	Price per connection	Performance (bit/sec)	Cost (per bit/sec)
Ethernet	\$500	10M	\$50
Token ring	\$1,000	16M	\$60
CDDI	\$2,500	100M	\$25
FDDI	\$6,000	100M	\$60

CDDI = Copper Distributed Data Interface

GRAPHIC BY SUSAN J. CHAMPENY SOURCE: CRESCENDO COMMUNICATIONS, INC., SUNNYVALE, CALIF.

MANAGEMENT INSIGHTS

BY ERIC SCHMALL

Don’t just do something; stand there!

In our industry, we are constantly reminded of the need to act upon events in order to provide optimum service and retain the sharpest of competitive edges. We’re called on not only to act, but also to be proactive so that we can head off problems before they develop.

This commonly held wisdom makes the concept of inaction appear inconceivable. But as heretical as it may seem, sometimes the best reaction to events is no reaction at all.

In any given day, there’s no lack of issues that demand our attention. In order to cope, we’ve all learned to categorize our responses. Some matters obviously come right to the front burner. Others demand partial response immediately, with more attention to come later. And a third group gets dumped into the “get back to it later” hopper.

All of us have experienced an instance in this last category where the issue dissolved long before we were able to address it. This is concrete evidence that a fourth category exists, one where matters sort themselves out without interference.

Experience in an organization can help you to assign some of your projects to the fourth category. Eventually, you learn that certain individuals or

groups talk about actions but never follow through. Sure, they’ll mention to you that they want to include your shop in some high-level designs for some future application. But they say that every year around planning time, and nothing ever comes of it.

You come to learn in the end that they deserve no real response. As an annual rite, you may still attend a meeting and participate in the ritual talk stage, but you never really have to engage yourself or your staff.

The wisdom of inaction might best be found in disputes over staff assignments. For instance, how would you react if you were told to give 25% of your staff to another department? One response would be to fight it. Another might be to acquiesce and then run a protracted resistance by sniping at the inheritor of your staff. But you may find that inaction, in this case, proves you are a team player who can transcend turf battles and recognize the greater good that may come from such a transfer.

The decision not to act is never weak or irresolute. Used consciously for the right occasion, inaction can prove to be a truly effective response. □

Schmall is director of telecommunications at an insurance holding company.



NETWORK SERVICES

BY TOM FERMAZIN

Multinational trend among servicers benefits users

In the midst of a sluggish economy, it's surprising that the network services industry is growing and expanding like the proverbial weed, much to the benefit of network users. The most recent example of this growth is Advantis, the joint venture that merges the respective networks of Sears, Roebuck and Co. and IBM for providing value-added network services and outsourcing.

While this growth is presumably good for Sears and IBM, users stand to benefit from it, as well. By combining their networks, Sears and IBM can offer strong international communications links to U.S. firms seeking to expand overseas at more affordable rates than either company could offer alone.

Economists have proclaimed the '90s the decade of the global economy. In this period, American businesses will increasingly look to foreign markets for growth, as well as strategic marketing, distribution and manufacturing alliances.

Communications needs will rapidly evolve beyond basic telephone and facsimile services to advanced electronic mail, electronic data interchange and engineering applications such as computer-aided design.

Large international network service providers such as Advantis will be best equipped to fill the shopping lists of these new multinational corporations, which need connectivity not only between New York and New Haven, but also between New Hartford and New Delhi. Advantis, which will reach 550 cities in 92 countries, as well as other rapidly expanding network service providers represent a new breed of international firms capable of doing it all. Users will benefit by having the services they want available in the locations they want.

Furthermore, like manufacturing, networks are subject to economies of scale. Bigger is cheaper. AT&T's vast network is considerably more cost-effective than any private network. As in any outsourcing formula, a large outsourcer can usually offer the same or greater service level for less money than a user can provide internally. So users will benefit from the lower fees companies such as Advantis charge.

Big carriers are also in a better financial position to foster innovation. While smaller network service providers struggle to pay off their last major equipment upgrade, large firms reach into their deep pockets and invest in newer technologies. For example, both Advantis and Sprint Corp. have announced plans to adopt Asynchronous Transfer Mode, the emerging high-speed transmission protocol.

Users will benefit by having access to these new technologies and services.

Consistency is as important in the network services business as it is in the fast-food industry. A McDonald's hamburger tastes the same in every corner of the U.S. and around the world. Large corporations expect the same level of consistency and service from their communications networks. Users will benefit by getting consistent service — domestically or internationally — from large network providers.

Fermazin is a free-lance writer based in Chicago.

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EDITORIAL

European Commission: Act now to salvage telecom plans

The European Commission's bold plan to persuade member nations to unify telecommunications policies so far has proved to be largely ineffective.

In this week's feature, "Expectations on ice," which starts on page 39, author Mary Martin points out that political infighting has blunted the effect of the European Commission's efforts to produce change abroad.

"[Deregulation and unification] is complete fiction," sums up Gerald Oberst, an attorney specializing in telecommunications for Hogan & Hartson in Brussels, Belgium.

Fiction, because earlier this year, the Danish government dropped a bomb when it decided not to support the Maastricht Treaty, the master agreement

for how the European Community (EC) will operate.

Further, the Italians this past July placed a moratorium on implementing all European Commission telecommunications directives. French resistance apparently persuaded the European Commission to delay release of a policy paper on cross-border telephone rates until September, when it votes on whether to support the treaty.

Despite the setbacks incurred, there has been progress with voice and data service rates. In EC member countries, rates have dropped 33% on average for a 64K bit/sec circuit and 25% for an E-1 circuit since 1988.

Among the "Big Four" EC countries — the U.K., France,

Germany and the Netherlands — there is now less than a \$1,000 monthly price differential for leasing 64K bit/sec lines to other European countries.

But the progress has been spurred by the threat of liberalization rather than the realization of the European Commission's plans.

If the European Commission is going to salvage its telecommunications plans, it needs to band together with its current supporters and move ahead with the reforms. Forget the French, the Italians and the Danes. Allow the British, the Germans and others to set the example. Ultimately, users will force other nations' post, telegraph and telephone administrations to support the reforms. **□**

OPINIONS

THE BLUE VIEW

BY ANURA GURUGE

IBM should hang out a new sign: Under new management



When it was unveiled in September 1990, IBM's SystemView strategy had the look of a winner. However, IBM has

struggled to flesh out a sorely needed SystemView architecture that shows how its many management initiatives fit together and helps users overcome confusion about recent IBM management directions.

IBM is now trying to patch up its management strategy. IBM's current system and network management story has an *Alice in Wonderland* touch to it, with incongruity as the prevailing theme. Just as it is in Wonderland, most things in IBM's management story are not what they appear to be.

For a start, IBM has said Advanced Peer-to-Peer Networking (APPN), the heir to Systems Network Architecture, will be managed via Open Systems Interconnection's Common Management Information Protocol and Common Management Information Services. That means the next-generation SNA will be managed using OSI methodology, instead of the SNA/Management Services (MS) technology that has been an integral mainstay of SNA since 1979.

There is nothing wrong with this, per se. Some in the network industry even see it as a positive and somewhat overdue shift toward open services and protocols. It's just that this OSI support, in more than one sense, came out of the blue without any scene-setting groundwork or any attempt to put it in context.

Then there is the AIX NetView/6000 product, announced in January of this year. Despite its NetView tag, this product is based on the Simple Network

Management Protocol and does not even have a direct interface to host-based NetView. Currently, NetView/6000 can only interact with host-based NetView via a third product — AIX NetView Service Point, a Unix equivalent of NetView/PC.

NetView/6000 is the management vehicle for the 6611 multiprotocol router. But because NetView/6000 can interact only with host-based NetView via the AIX NetView Service Point, the supposedly strategic

IBM's current net management story has an *Alice in Wonderland* touch to it.



and SNA-supporting 6611 appears to, and is treated by, host-based NetView as if it were a non-IBM product.

Furthermore, IBM's newly announced Fiber Distributed Data Interface products will also be managed using SNMP — in this case, an OS/2-based SNMP proxy agent that interacts with NetView/6000. So we now have OSI management for APPN and SNMP managing the 6611 as well as IBM's FDDI offerings, while IBM's mainline SNA products will continue to be managed using SNA/MS and NetView.

To add further intrigue to this, IBM is also now making statements about trying to incorporate the Open Software Foundation, Inc.'s Distributed Management Environment into its overall management story. And to think that consistent, and even comprehensive, management was a precept once regu-

larly advocated by IBM.

Exacerbating this disarray is SystemView. Despite IBM's posturing to the contrary, SystemView today has not changed from what it was two years ago. SystemView is as yet just a paper-tiger strategy.

To be fair, SystemView is the cause of this atypical turmoil in IBM's management strategy. With luck, and some deft footwork from IBM, SystemView can also be the cure for this turmoil.

Providing OSI-based system and network management was one of the original purposes of SystemView. With SystemView, IBM does intend to standardize on OSI management protocols.

The vendor has said as much to its users. So at some point, IBM has to make the painful transition from SNA/MS to OSI. It might as well bite the bullet now and kick off mainstream APPN with SystemView-compliant management. Then it will not have to migrate APPN to OSI management a few years down the road just as customers are seriously beginning to consider changing from SNA to APPN.

IBM has to give SystemView an architectural foundation and, through that, a leadership role soon. Otherwise, IBM stands to lose much of the management ground for which it has fought hard. That would be a shame.

It is time for us to see a sign from IBM that says, in no uncertain terms, "Under new management." ■

Guruge is an independent consultant specializing in internetworking, SNA, APPN, Systems Application Architecture and SystemView. He writes extensively and presents seminars around the world. He can be contacted at (603) 878-1303 or through Internet/MCI Mail at aguruge@mcimail.com.

TELETOONS

BY FRANK AND TROISE

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LETTERS

Confidence in frame relay

I am writing to clarify MCI Communications Corp.'s position in regard to your recent editorial "There's more to high-speed services than meets the eye" (NW, Aug. 10). The editorial questioned the commitment carriers have made to high-speed services, such as frame relay, Switched Multi-megabit Data Services (SMDS) and Asynchronous Transfer Mode (ATM).

For the record, MCI is and will continue to be committed to providing standards-based high-speed packet data services as the market and our customers demand them. MCI is the only company that has deployed a national cell-based network designed to support our frame relay service.

We purposely based our overall data strategy and developed the network platform to

support frame relay today, yet we have the built-in capability to provide customers with a flexible and cost-efficient migration path to future services, such as SMDS. Our network development effort represents a significant investment and a commitment to the long term.

Finally, MCI's assessment of user demand for frame relay is very positive. We launched the service commercially a little over a month ago and are very pleased with the results from our beta-test users. While users are still familiarizing themselves with frame relay applications, we are certainly not dismayed with the market's reaction to frame relay at this early stage.

Lawrence Bouman
Senior vice-president
Network engineering
MCI Communications Corp.
Richardson, Texas

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Letters may be edited for space and clarity.

ATTENTION VENDORS OF ROUTERS AND BRIDGE/ROUTERS: *Network World* would like to list your product in a Buyer's Guide being published Oct. 26. This Buyer's Guide will cover the critical buying criteria and current market trends for routers and bridge/routers. Stand-alone bridges will not be included.

To obtain a survey form, call Charles Bruno, features editor, at (508) 820-7414 or Marc Miller at (303) 469-4113. We must receive your request for a survey form by Friday, Sept. 11.

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While European Community efforts have improved net conditions abroad, regulatory reforms have fallen short, causing users to put their . . .



Network managers in the European Community (EC) who expected to hear champagne corks popping in 1992 as regulatory barriers were swept away have had to put some of their expectations on ice.

But there is still cause to celebrate the progress that competitive pressure has wrought, even where political pressure from the EC has failed to produce change in telecommunications policies as expected.

As far as 1992 being the magical year for deregulation and unification, "It's complete fiction," says Gerald Oberst, an attorney specializing in telecommunications for Hogan & Hartson in Brussels, Belgium. After hundreds of policy papers, directives and recommendations, the difficult job of implementing reforms largely lies ahead, he says.

Mired in politics

Telecommunications, as one important component of EC integration, was supposed to have become harmonized, liberalized and competitive by 1992. For users, that goal means access to up-to-date services at competitive prices. Harmonization also means that member states' laws will become sufficiently uniform to topple trade barriers.

"It's an event that hasn't really happened," says Kenneth Phillips, a consultant for Citicorp. Politics and grow-

ing resistance from some EC member countries to the one-for-all approach have obstructed good intentions.

In July, for example, Italy declared a unilateral moratorium on implementing European Commission telecommunications directives. French resistance reportedly caused the European Commission to delay release of a policy paper on cross-border telephone rates until after France votes on the Maastricht Treaty this month.

The Maastricht Treaty, signed last December, spelled out how EC countries could join their banking and currency systems, and provided other details of the unification. Some EC countries have balked at the proposed radical changes.

Denmark's rejection of the treaty

earlier this year has sensitized everyone to the increasingly delicate politics of integrating EC members into a common market. "No one has any desire to do anything controversial right now," Oberst explains.

"I'm beginning to wonder if the whole thing's not going to run aground," says Jerry Stern, a consultant for TeleChoice, Inc. in Montclair, N.J. "Nothing is a fait accompli in the EC at this time."

Competition scores

Even frustrated EC watchers agree that operating networks in the commu-

In EC member countries, rates have dropped on average 33% since 1988 for a 64K bit/sec circuit and 25% for an E-1 circuit.

-33 -25

...expectations on ice

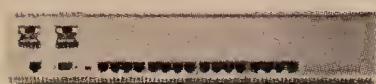
By MARY MARTIN



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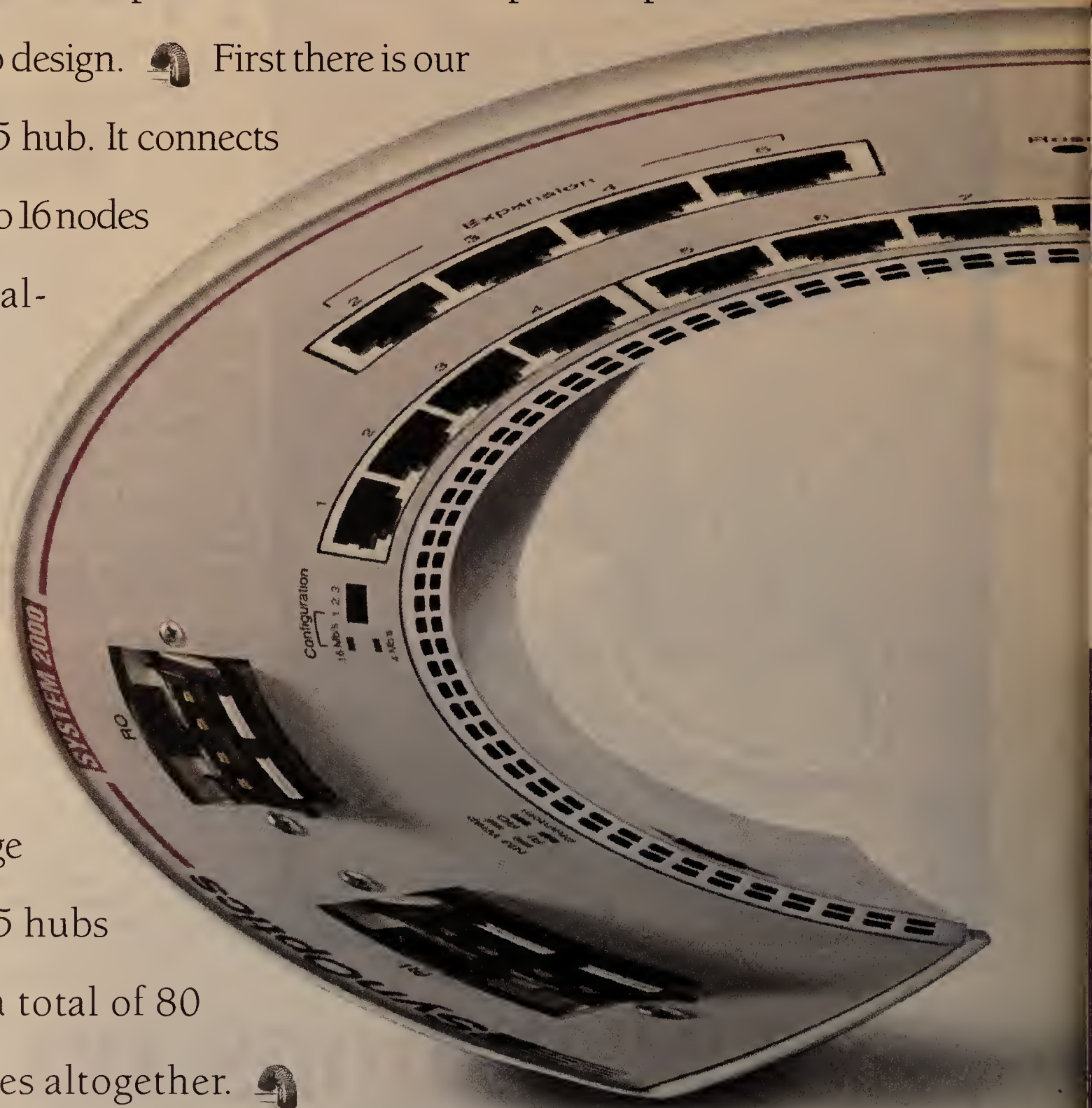


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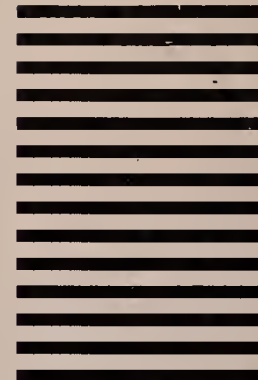


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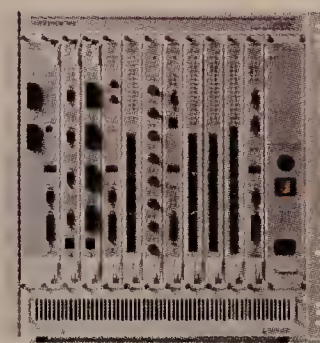
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(continued from page 42)

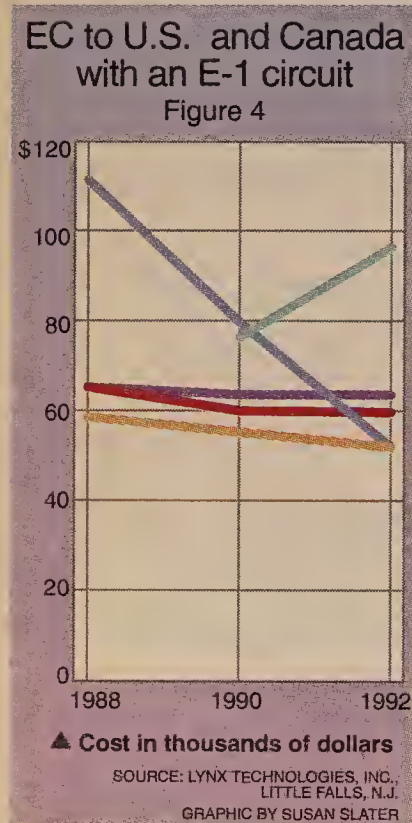
July 1, 1993 — pan-European services would probably multiply, largely because service providers would have to satisfy one government, not several.

Uniform licensing requirements would be welcomed by Maynard, Mass.-based Digital Equipment Corp., according to



John Smith, DEC's senior counsel for telecommunications. The customized services DEC provides for large customers in 27 European countries sometimes trigger the same licensing requirements as value-added nets, and "Licensing schemes vary," Smith says.

One of the most important commission initiatives so far has



been the 1990 services directive, which obliged EC states to provide nondiscriminatory access to all telecommunications suppliers, except in the area of voice telephony. Many of the options now available for network management and value-added services would not otherwise exist.

In June, the commission issued its leased-lines directive, scheduled to be implemented by June 1993. It requires all 12 EC member states to offer certain types of circuits — at variable speeds — and to provide one-stop ordering and billing at transparent, cost-oriented prices.

Obtaining access to leased lines has been a major frustration for EC network managers.

The situation has improved, but "Delivery time for lines between countries is still longer than it needs to be," says David Marshall, worldwide voice network project manager for SGS-Thomson Microelectronics. "And

they won't give you a due date. That's my hot button. It's very difficult to plan network implementation because of the variability of delivery dates."

It took six months to get the first communications line installed when Texas Instruments, Inc. began work on its Avezzano, Italy, facility two years ago, says Larry Proctor, manager of network operations for TI.

Outages, service problems and lack of infrastructure slowed progress. Then there was the cultural problem. Italian phone company workers stop working at 3 p.m., Proctor recalls, leaving TI with a commitment to 24-hour service but no one to call when outages occurred. Eventually, the Italians recognized the need for a change in cultural attitude and now provide round-the-clock maintenance, he notes.

Privacy rules vs. data flow

Proposed privacy regulations have many companies nervous about what kind of information they may legitimately send across borders, though few will discuss the problem openly. The philosophy of protecting individual privacy is more deeply ingrained in the European psyche than in the U.S. — and with reason.

Hitler's Nazis used phone records to track the communications of suspected Jews and resistance sympathizers — a practice so abhorrent that Winston Churchill outlawed the keeping of any records that could possibly be used to identify a citizen's affiliations. Much of Europe followed suit, leading to a strong tradition of privacy regulations, including nonitemized phone bills.

But today, the proposed EC privacy regulations would require companies to obtain explicit written consent from individuals before collecting or transmitting personal data, such as payroll information, across bor-

"Delivery time for lines is still longer than it needs to be."

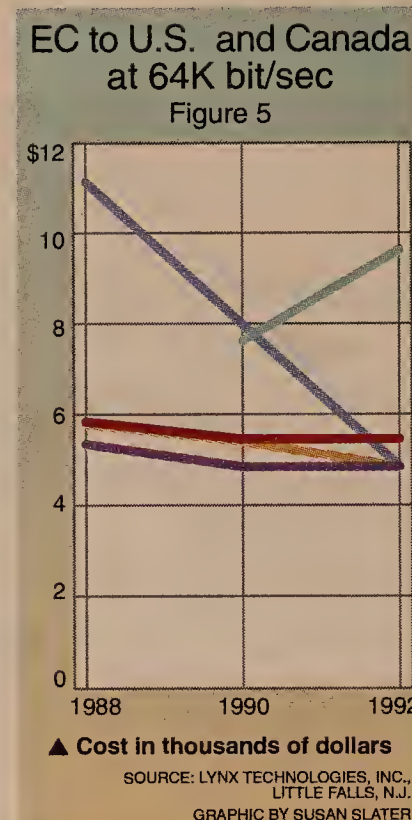


ders. They would also have to notify the supervisory authority in the destination country each time the information is transferred. And personal data could not be transferred to a nation, such as the U.S., that does not ensure an "adequate level of protection."

The implications are staggering for banks, insurance and

credit card companies, direct marketing firms, travel reservation services and others that must regularly transmit information about thousands of customers.

"Everyone has said what [the commission] is proposing won't



work. It will shut down the international payments system," says the Telecommunications Users Association's Allen. The commission has conceded that this is not the desired result, he says, and has agreed to redraft the regulations.

Haag, the European Commission's legal advisor, says his directorate is "unlikely to include private networks in the scope of the next privacy regulations proposal." Nevertheless, privacy restrictions could be imposed from other directorates within the huge and complex EC bureaucracy, which would impede the flow of information.

Meanwhile, as one U.S. network executive asks, "How are they going to know?" Practically speaking, the information moving across private nets remains private, even from governments, and it's often encrypted. Many companies will probably continue to operate as necessity requires and hope that regulations will eventually reflect reality.

According to Nanette di Tosto, who analyzes EC regulations for the U.S. Council for International Business in New York, at least one EC country is aware that companies regularly violate national privacy regulations but looks the other way. Di Tosto declined to name that country.

Looking ahead

Lack of political consensus may slow the pace of change, but users and analysts agree that it cannot ultimately deter it.

The rumblings that grew in volume after Denmark's vote on Maastricht represent only a tem-

porary backlash, says HP's Price.

"The economics of the situation are going to continue to push it," he says. "It will be harder for Europe to compete with the U.S. Unless they want to step away from that, they have to liberalize."

There's no turning back, agrees Cargill's Lantto. "If they put up a barrier, they're going to risk a company moving its business elsewhere. It's the way things will be done," he says.

"[Competition in voice services is] really the next frontier they've got to cross," says Kenneth Leeson, IBM's program director for telecommunications.

But that day is probably in the distant future.

As Oberst predicts, "[The EC] is not going to order the elimination of voice monopolies anytime soon."

Leeson says he hopes to see satellite services opening up with more competition. And, in fact, the commission is expected to issue a proposed directive on liberalization of satellite services in the near future, perhaps as early as January of next year.

Many managers would like to see restrictions relaxed to allow users to easily cross private and public networks, which is cur-

rently prohibited except in the U.K.

Net managers, for instance, would like permission to transfer off-net calls to customers in another country, which requires jumping off a private net onto a public network.

One network executive says this is often done unofficially. The opposite — switching from public to private — is allowed at one end of a private network. However, the prospects for this new freedom are not favorable, EC experts say.

Still on the EC regulatory table are issues such as standardizing Integrated Services Digital Network, including a uniform pan-European numbering plan. In addition, preliminary steps have been taken to harmonize and liberalize a major group of radio-based technologies, such as digital cordless, cellular mobile and digital short-range radio.

Although some have characterized the pace of change in the EC as glacial, historic perspective is useful.

"You can either look at how far they've come or how far they have to go," Oberst says. "In terms of liberalization, it's continued at a speed no one would have believed 10 years ago." □

Roots of the EC

The European Community (EC) was formed from three common interest groups in 1965.

Today it consists of Belgium, Denmark, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain and the U.K.

Originally conceived as a customs union, it eliminated intra-EC customs duties and in 1968 created consistent external customs. But other nontariff barriers persisted among member states. Inconsistent laws, technical standards and protectionism prevented the EC from becoming a single economic force.

In 1985, the EC issued a white paper which contained broad goals for a truly integrated EC, with 1992 as the target year to eliminate physical, financial and technical barriers to trade among EC member states.

Progress has been slowed by unforeseen changes, such as the reunification of Germany, the collapse of the Soviet Union and the desire to help Eastern Europe join its western neighbors. In addition, some member states have balked at implementing European Commission directives.

At Maastricht, Netherlands, in December 1991, EC heads of state agreed to the particulars of the next stage of unification, which include the establishment of a European Central Bank and a single common currency, called the EC unit. They also agreed to a common security and defense policy, and a common visa policy.

Social policy, as well as policies for health, education, the environment, energy, culture, tourism and civil protection are all expected to eventually come under EC jurisdiction.

The Maastricht Treaty must be ratified by the voters of member states. However, Denmark has rejected it. France will vote on it this month.

The organization is closely aligned with the European Free Trade Association, which consists of Austria, Finland, Iceland, Lichtenstein, Norway, Sweden and Switzerland. These countries, as well as nations of central and Eastern Europe and the former Soviet Union, have expressed interest in joining the EC or creating a European Economic Area which would permit uninhibited commerce and movement of people between the blocs.

— Mary Martin

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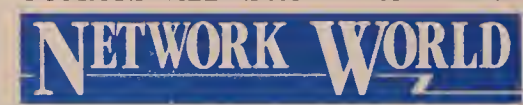


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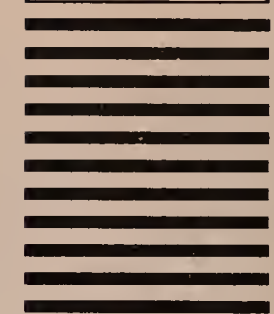
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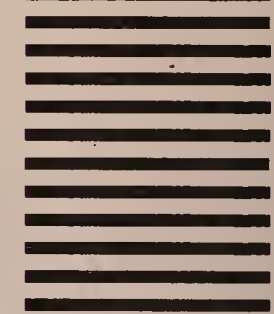
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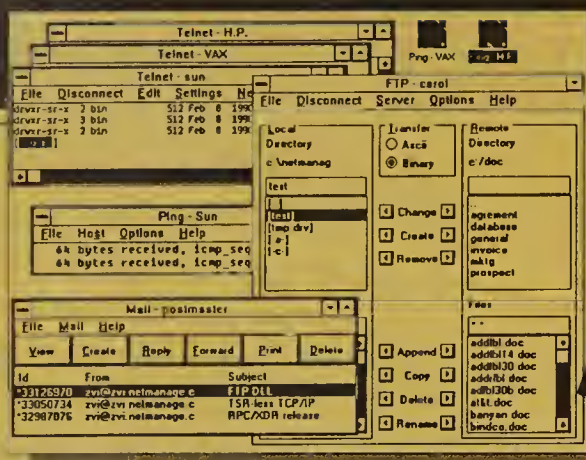
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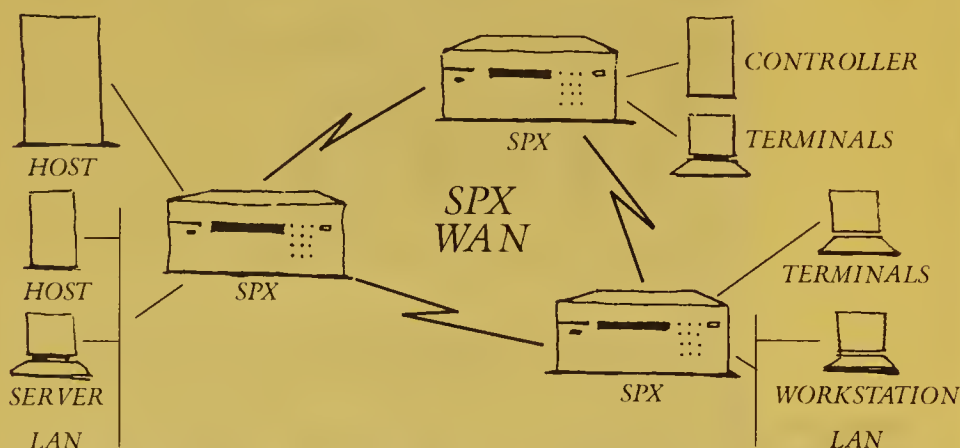
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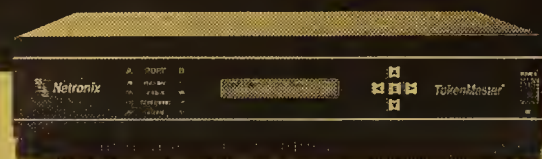
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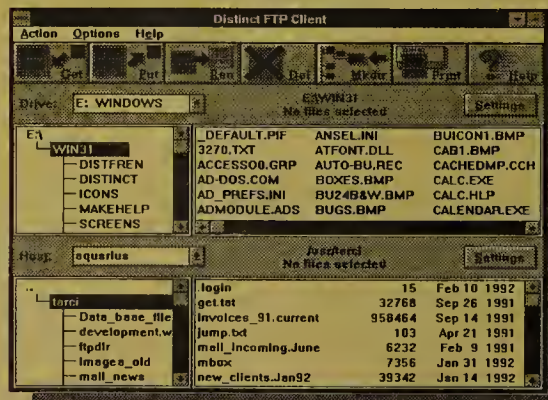
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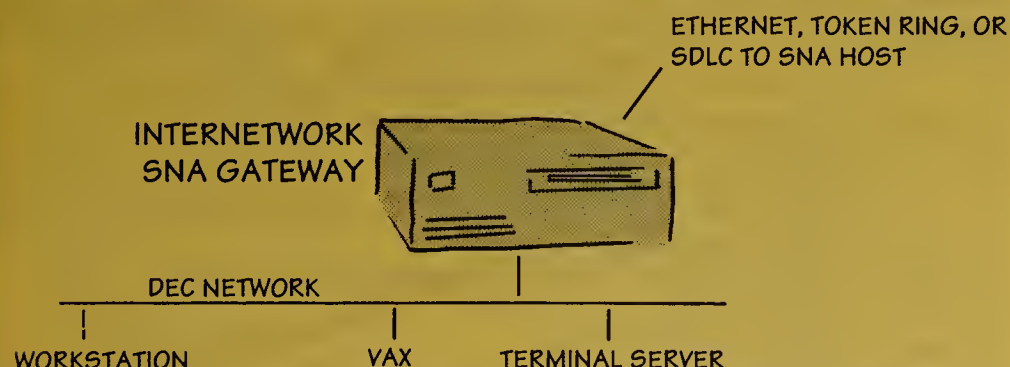
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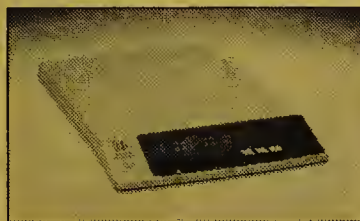
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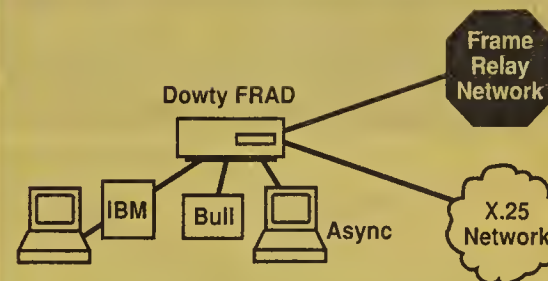
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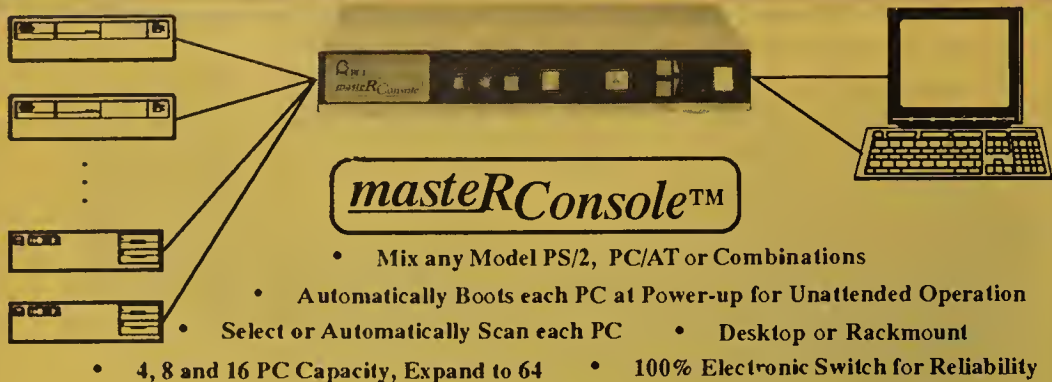
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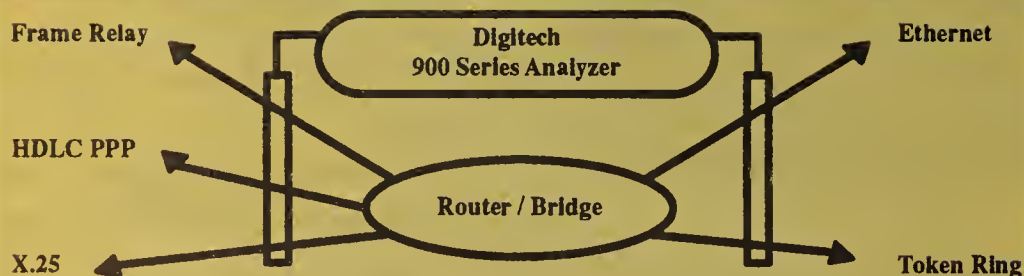
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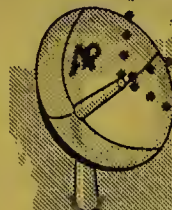
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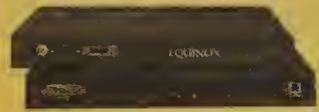
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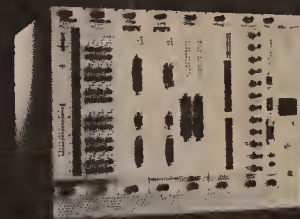
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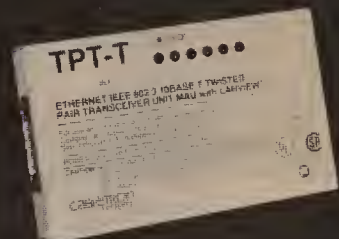
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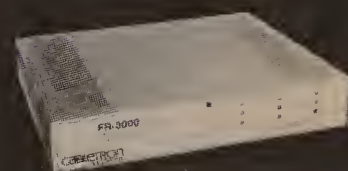
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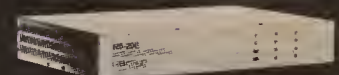
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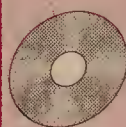
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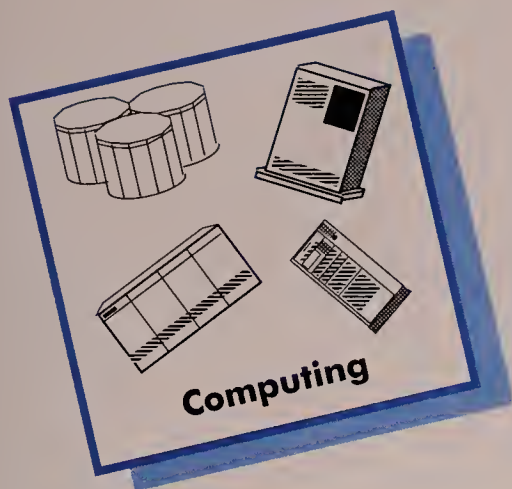
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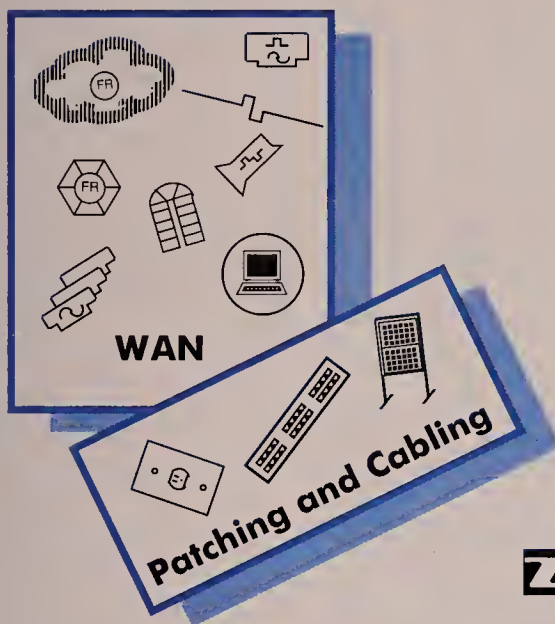
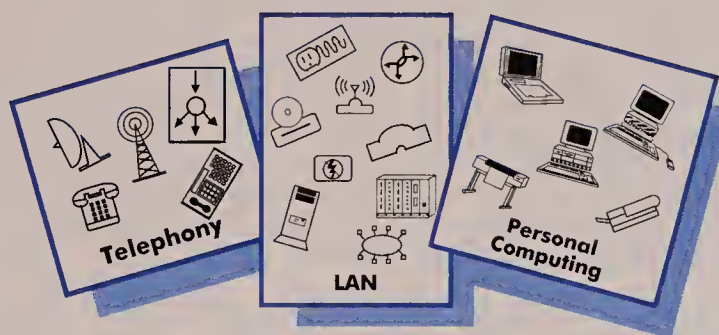


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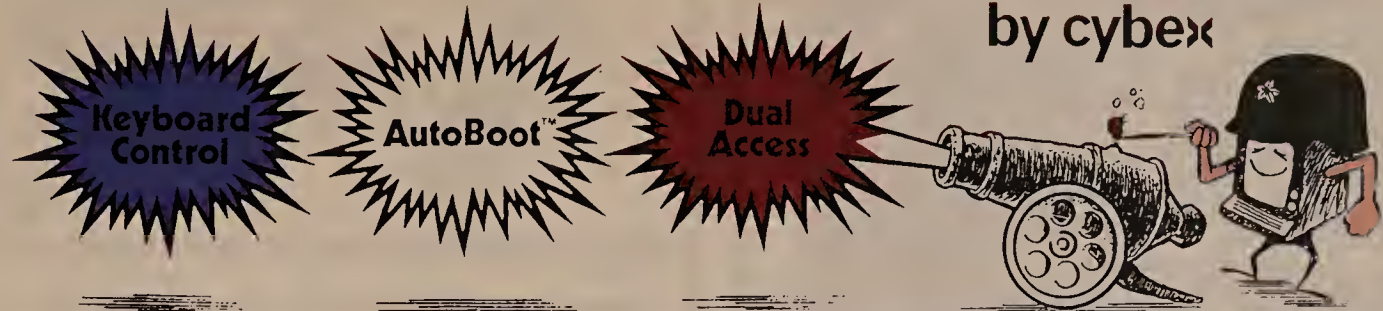
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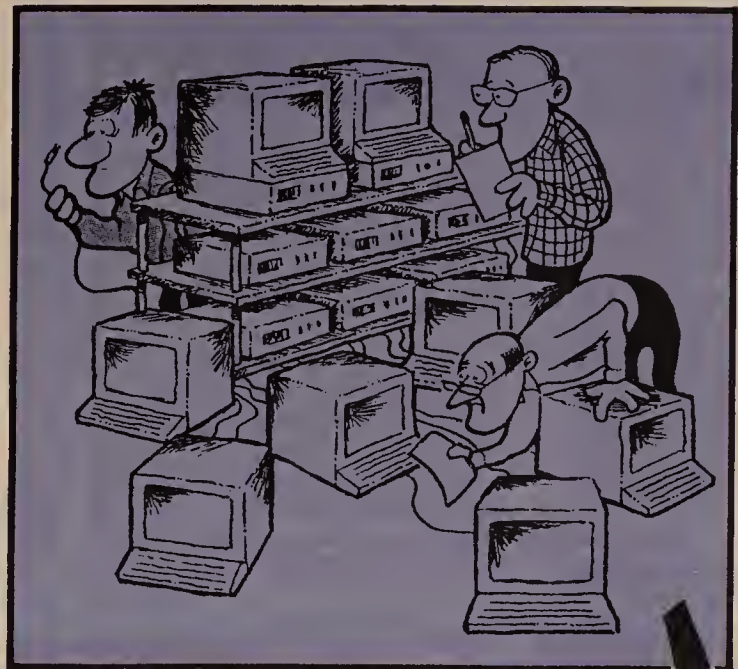
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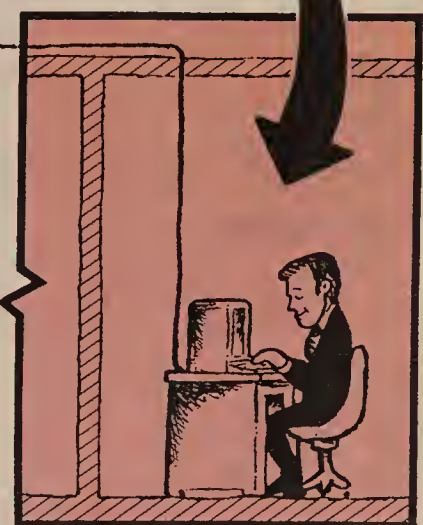
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Mux maker reveals plan

continued from page 1

products to OpenView, nor will OpenView manage existing T-1, T-3, packet-switched and LAN internetworking gear. But OpenView will be the core management application for new products and non-Ascom Timeplex gear.

Analysts said Ascom Timeplex's strategy makes sense, given its increasing emphasis on LAN routing and standards. Also, the firm's multiple management system approach should not confuse customers as much as the company's sales representatives, they said.

"The existing base will stay with what they have," said Rick

Malone, principal of Vertical Systems Group, a Dedham, Mass., T-1 market tracker. "But for new accounts, what will the sales force emphasize?"

The company decided to offer OpenView because it provides multivendor system management and it is a key component of the Open Software Foundation, Inc.'s Distributed Management Environment (DME).

"OpenView is one of the better vehicles for multivendor management," said Stephanie Sovak, Ascom Timeplex's senior product manager. "It allows users to begin integrating management of other products and allows us to move into the DME world."

Ascom Timeplex's strategy mirrors that of competitors Network Equipment Technologies,

Inc. (NET) and Gandalf Systems Corp. NET licensed HP's Network Node Manager, an OpenView application, about a year ago to develop an SNMP system for managing its LAN and wide-area network equipment.

NET also intends to develop DME applications for managing wide-area and internetworking equipment.

Gandalf recently disclosed that it will offer a system based on OpenView for managing its local and wide-area equipment.

Meanwhile, Ascom Timeplex plans to offer Ethernet and token-ring bridge/router modules for its entreeLink+ multiplexer, said James Babcock, vice-president of Ascom Timeplex's transport business group. Each entreeLink+ will house one Ethernet

or token-ring module supporting two LAN ports at speeds of 10M and 16M bit/sec, respectively.

The modules will route Transmission Control Protocol/Internet Protocol, Xerox Corp.'s Xerox Network Systems and DECnet protocols, and support the source route transparent and Spanning Tree bridging algorithms, Babcock said. AppleTalk and Open Systems Interconnection protocols may be supported in later releases, he said.

The company has also reconsidered its strategy for the Synchrony Service and Transmission System, which was introduced early this year as a high-end SONET mux supporting a transmission bandwidth of 300M bit/sec. It costs between \$100,000 and \$300,000.

While Ascom Timeplex will not specify what Synchrony will look like when it is actually delivered, Babcock said it will now be positioned as a lower end device for linking LANs to wide-area backbones. Details on it will be disclosed later this year.

He acknowledged, however, that Ascom Timeplex's original intentions exceeded user requirements. "Users are looking for more of a mid-range product the first time out," Babcock said. "We'll raise the power as market dynamics allow [that throughput] to be successful," he said.

Synchrony will support time-division multiplexer, frame relay, Asynchronous Transfer Mode, Switched Multimegabit Data Services and Integrated Services Digital Network services. ■

Cisco challenges IBM net plan

continued from page 1

it has completed work on Phase 4 of its SNA strategy and in October will begin shipping router software supporting Phase 4 features (see "Ensuring data performance," this page). The software is intended to ensure that the performance and reliability of multiprotocol internets supporting SNA will be comparable to that of pure SNA nets, said Michael Zadi-

king protocol, rather than relying on IBM Network Nodes to supply routing instructions in APPN nets. Cisco will achieve this by turning its routers into what it calls Open Network Nodes (ONN).

ONNs will support APPN End Nodes and LEN nodes, and communicate with them via LU 6.2 sessions, just as in an APPN net. But ONNs will attach an IP header to LU 6.2 traffic and route it across the backbone using IP in conjunction with specialized directories being developed by Cisco.

Those directories will be centralized, distributed or a combination of the two, giving users more options for how to configure their networks, Zadikian said. APPN currently offers only distributed directories, although it has a more centralized directory plan in the works, he added.

"Doing something that would allow APPN functionality to ride over TCP/IP nets might make a lot of sense because APPN has not yet shown itself to be a superior routing protocol," said Steve Simon, a senior telecommunications engineer at The Travelers Corp. in Hartford, Conn. A major APPN drawback is that it cannot dynamically reroute failed sessions, a feature Cisco is promising in APPI, he said.

APPI will also be an open standard, available free of charge to vendors and users. It will be developed by a consortium representing a cross section of the industry, including hub makers, carriers and others. APPN, on the other hand, was developed and is licensed solely by IBM.

"Cisco is saying that it is going to provide a real competitive alternative to APPN and let the users decide," said David Passmore, a vice-president at Gartner Group, Inc., a market research firm in Stamford, Conn. "I think IBM has to take this seriously."

An IBM spokeswoman declined to comment on APPI, saying the firm is examining it.

IBM may find there are some drawbacks to APPI, at least with the initial version due out by the third quarter of next year.

ONNs will support PU Type 4 capabilities, such as Class of Service prioritization, only at the periphery of the network. Once SNA packets are encapsulated in IP, they will be treated by intermediary routers within the network "cloud" the same as any other IP packet traversing the backbone.

By early 1994, Cisco will enhance its ONN routers to remove that limitation, enabling SNA

prioritization schemes to be employed throughout the network. Cisco plans to begin shipping native APPN Network Node software in the third quarter of 1994.

Why not APPN?

Cisco has chosen to spearhead APPI development because IBM priced its Network Node license too high and because of selective licensing practices that are sure to keep APPN proprietary, Zadikian said.

"Cisco's commitment to SNA peer-to-peer networking is conditional on IBM's continued progress toward opening SNA up more and more," he said.

Ensuring data performance

MENLO PARK, Calif. — Cisco Systems, Inc. last week unveiled routing software designed to ensure that SNA data gets the performance it requires when riding over a multiprotocol internet.

The software fulfills the objectives outlined in Phase 4 of Cisco's five-phase plan for supporting IBM Systems Network Architecture traffic. Included is support for several SNA PU Type 4 properties, including Class of Service, Transmission Groups and local termination of Synchronous Data Link Control sessions. Cisco and CrossComm Corp. are the only router vendors supporting such features.

Class of Service is key for ensuring that users get the deterministic response times they are used to with SNA, said Michael Zadikian, Cisco's SNA product manager. The feature complements an existing capability that lets Cisco routers prioritize non-SNA packets based on protocol, port number and packet size.

To support Class of Service,

Cisco routers read the headers on incoming SNA packets and funnel them into one of four outgoing queues based on previously assigned prioritization rankings (see graphic, page 1).

Besides giving SNA priority over other protocols, users can also prioritize among different types of SNA traffic and devices. Front-end processor (FEP)-to-FEP traffic can be given a high priority, for example, and specific cluster controllers and terminals can also be prioritized with respect to one another.

Support for Transmission Groups, meanwhile, provides for load sharing and redundancy by enabling multiple physical SDLC lines between FEPs to appear to the router as one logical pipe.

Picking up where it left off in Phase 3 with local termination of token-ring traffic, the router vendor has announced local termination for SDLC traffic. That lets Cisco routers locally acknowledge the receipt of SDLC packets on behalf of the remote

devices to which the packets are destined, thereby preventing SNA acknowledgment and polling traffic from traversing and clogging the wide-area network.

Cisco also locally terminates SDLC timers, which helps ensure that sessions stay up through WAN failures or congestion.

Another Phase 4 feature to reduce WAN traffic and improve performance is Network Basic I/O System caching. NETBIOS caching reduces broadcasts sent by new NETBIOS stations across a network.

Other new Phase 4 features include: SDLC-to-Ethernet conversion, which lets users link SDLC devices to hosts via a channel-attached Ethernet; Fast Sequenced Internet Protocol Transport, a streamlined IP routing technique; and support for the Simple Network Management Protocol token-ring Management Information Base.

The new features will be available next month as part of Cisco's IBM Connectivity Software Release 9.1, priced from \$450 to \$1,800, depending on router size.

— Bob Brown

“APPN has not yet shown itself to be a superior routing protocol,” Simon said.

▲▲▲

kian, Cisco's SNA product manager.

Phase 5: APPI vs. APPN

Phase 5's APPI will go a step further than Phase 4 to address peer-to-peer SNA networking. Like APPN, it promises to let any SNA APPN End Node or Low-Entry Networking (LEN) node communicate directly with any other End Node or LEN.

Previously, SNA devices could only be bridged and all routing was done by the host and front-end processor.

APPI will also support APPN features that automatically configure End Nodes into the network, although LEN nodes have to be manually added to routing tables. End Nodes and LEN nodes are PU Type 2.1 devices at the periphery of an APPN net that do not have routing capabilities.

Unlike APPN, however, APPI uses IP as the intermediary rout-

User trial major step in evolution

continued from page 1

tions Research. "And it plays into SMDS' strength, which is inter-company networking."

User participants include Shadyside Hospital, Carnegie-Mellon University, the Pittsburgh Supercomputer Center, IBM Technology Center, the University of Pittsburgh and Bell Telephone Co. of Pennsylvania's PrepNet, a statewide internet-work. Participants in the three-month trial will pay for one 1.544M bit/sec access link to a Siemens Stromberg-Carlson SMDS switch, while Bell Atlantic will provide free customer premises equipment such as routers and channel service units (CSU).

Unlike frame relay, which is connection-oriented and akin to private-line networking, SMDS is similar to local networks in that users have individual addresses and the service is connectionless. Given this distinction, some believe frame relay is better for in-

ing two or three sites. That's got to change. Hopefully, a successful trial will get the ball rolling."

Shadyside also hopes to use SMDS to access the Internet. "We're currently using a T-1 to access the Internet," McLinden said. "But if SMDS proves more flexible and less expensive, we may eventually be able to cast off the dedicated connection."

Ultimately, McLinden would like to see a world where the hospital could establish high-speed dial-up links to doctors and pharmacists, but he said it may be tough, if not impossible, to persuade them to shell out \$30,000 to \$40,000 for the CSUs and routers needed in order to use SMDS.

"Our strategy is to create a network that will provide incentives for others that want to come aboard," McLinden said. "But to make that practical, the [network] equipment has to be affordable." He said SMDS-compliant routers and CSUs cost three to four times as much as the same equipment used in T-1 networks.

Some participants, including

Ameritech signs \$1b fiber deal

By Bob Wallace
Senior Editor

CHICAGO — Ameritech Information Technologies has signed two contracts valued at almost \$1 billion for equipment that will enable its five telephone companies to speed deployment of fiber in the local loop.

Ameritech said the deals represent the largest single purchase

in telecommunications history and will more than triple the amount of fiber in its telephone companies' local loops.

Ameritech signed contracts with Digital Switch Corp. of Plano, Texas, and Raynet Corp. of Menlo Park, Calif., for fiber distribution systems and cable, which the vendors will install.

Ameritech said the fiber systems will enable Illinois Bell Telephone Co., Indiana Bell Telephone Co., Michigan Bell Telephone Co., The Ohio Bell Telephone Co. and Wisconsin Bell, Inc. to offer a more reliable, self-healing network and a platform that will speed service provisioning.

"We will be able to provision T-1s to existing businesses in about five minutes, where it currently takes almost a week," said Bill Kohl, senior director of strategy integration with Ameritech.

"This is very good news for users because it means the telcos will be able to offer an array of multimedia services," said Tom Fermazin, technology analyst with Amoco Corp., a Chicago-based oil company.

The telephone companies will begin deploying fiber equipment by year end. In all, 2.5 million customers throughout Ameritech's five-state region will have access to new fiber-optic technology by year-end 1995. □

Net-ready printers bow

continued from page 4

NIC option will enable administrators to monitor remote Pagemarqs for problems such as paper jams and whether the machine is on-line.

The NICPrint utility, which runs on a remote workstation, has the same look and feel as other NetWare print utilities. It lets

administrators maintain and configure printer NICs from a central location.

The Administrator Utility, however, is more comprehensive. Through an icon-based interface, the administrator can remotely configure the printer to change fonts or add random access memory, for example. The administrator can also obtain printer status information, such as paper and toner levels, as well

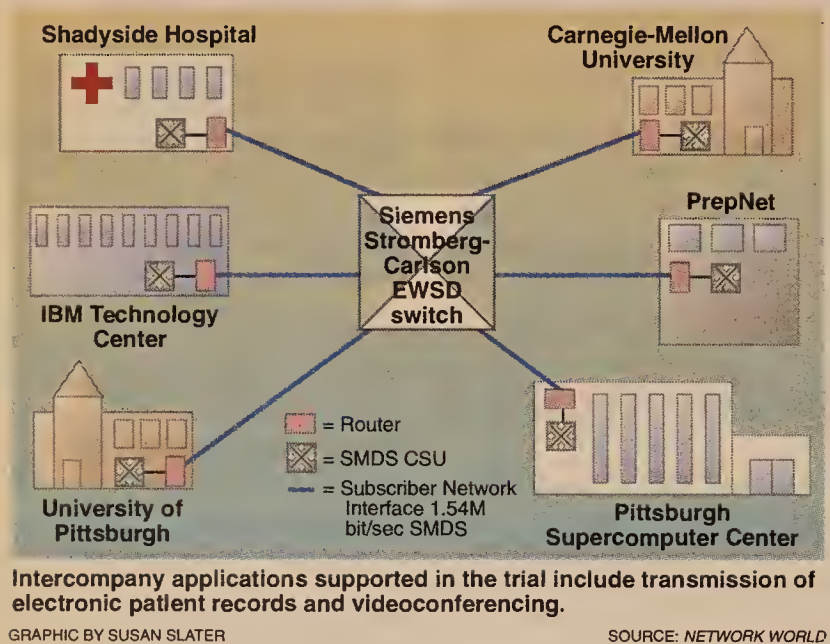
as run tests.

"We like the ability to monitor the printer from a workstation," Weeks said. "There's a lot of things it lets you check remotely."

The Pagemarq 15 and Pagemarq 20 are available now at \$3,999 and \$5,499, respectively. NIC options range from \$229 for LocalTalk connectivity to \$729 for NetWare-based token-ring connectivity. □

Bell Atlantic launches intercompany SMDS trial

Project includes 6 large users in Pittsburgh



tracompany communications, and SMDS will play a larger role as an intercompany service.

While this trial will use 1.544M bit/sec access links, SMDS ultimately will support speeds up to 155M bit/sec. Applications to be tested include everything from video exchange to Internet access.

Sean McLinden, vice-president of MIS for Shadyside Hospital, said his firm will use SMDS to support an electronic patient information system that will speed patient processing.

"Users need to view SMDS as a means of establishing a communitywide network that will help them better service their customers and tie in suppliers," McLinden said. "The SMDS net becomes the information link to these sites. Too many people view SMDS as just another way of link-

Carnegie-Mellon, have focused their efforts on selecting applications for the trial and are leaving equipment issues for later.

Paul Parker, network service supervisor for Carnegie-Mellon, said the school will initially use SMDS to support a packetized video application.

"We're interested in seeing the quality of video [over] SMDS because video is particularly sensitive to latency," he said.

The university thinks SMDS could be a more cost-effective and flexible alternative to T-1. In the trial, it will transmit packetized video and audio to support videoconferences with Shadyside and the IBM Technology Center.

The university may add other applications to stress-test SMDS. "We want to see how the service performs when we really beat on it," Parker said. □

Andrew reminds users to plan

continued from page 2

clients tried to keep data safe by sending it home with employees on tape. Unfortunately, many of the employees also lived in Dade County, which bore the brunt of the hurricane. Some clients lost offices and homes.

"Companies should rotate tapes through an off-site storage facility that has fireproof and waterproof vaults," McIsaac said.

But even companies with comprehensive recovery plans and well-protected computer and network infrastructures were no match for Andrew's fury.

According to M. Lewis Temares, vice-president of information resources at the University of Miami at Coral Gables, Andrew actually ripped up conduits carrying fiber-optic cable that were buried in the ground.

"There must have been tornadoes in the hurricane for it to rip up the ground like it did," he said. "I don't know what I can do to protect against that."

Many companies didn't anticipate that the lack of water following the storm would prevent them from resuming computer operations. Two days after the storm, Metropolitan Dade County had to shut down its data center because the water level in Miami's underground aquifer dropped so low it couldn't pump enough water to cool its three backup generators.

"If [the county] had dug a deeper well, we wouldn't have

lost water pressure and could have kept our data systems going," said Frank Fernandez, systems support supervisor of data communications for Metropolitan Dade County.

Hurricane Andrew highlighted the importance of business resumption planning.

"There's no sense bringing computers and networks back on-line if there is no one there to use them," said Bob Campbell, chief executive officer of Advanced Information Management, a consulting firm specializing in security and disaster recovery issues.

According to David Cameron, vice-president of information systems at Wackenhut Corp. in Coral Gables, Andrew proved that companies need a business interruption plan that enables them to communicate with employees and provide assistance if needed, operate the business without a full staff, and keep clients and suppliers abreast of the situation.

"Many companies spend a lot of time planning how to recover their computers and networks but less time [on] how to recover their business," Cameron said.

Companies spent the first few days after the storm trying to account for and assist employees who live in areas devastated by the storm. Companies also were scrambling to locate temporary office space in which to resume operations.

Equinox Systems, Inc., a maker of data switches and multiplexers, sustained considerable damage to its main offices in south Miami and was forced to evacuate the premises. It was fortunate to find available office space in two sites north of the city and resumed its operations there four days later.

"It would make sense to continually update your disaster recovery plans with available real estate space that could support your operations if you needed to move," said Bob Gintz, vice-president of development at Equinox.

Equinox has been unable to get Southern Bell Telephone & Telegraph Co. to install enough phone lines to the new sites because the carrier is too busy installing lines to support the Federal Emergency Management Agency and other relief organizations in south Miami.

Andrew also revealed that many companies lacked adequate insurance or did not fully understand the coverage they had on computer and network equipment.

McIsaac said many of his clients neglect to update their insurance coverage when they buy new computers and phones. Also, many firms do not take out insurance that covers expenses for re-installing information systems. One client had \$75,000 worth of coverage for personal computers, printers and phones, but ended up paying \$25,000 to rewire and reconfigure its systems. □



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AS/400 prepped for growth

continued from page 2

cally switch to a secondary VTAM host should the primary VTAM fail. This feature is essential to APPN because of its dynamic routing features and high net availability promises.

"In the APPN environment, all of the VTAMs will look like different nodes to the AS/400," said Mark Pozefsky, manager of IBM's communications systems architecture. "If the AS/400's primary VTAM goes down, another can pick up [its data traffic] without interrupting the network."

In order to reestablish this connection in the past, the AS/400 would had to have been shut down and a new data link path defined.

Another enhancement will for the first time let the AS/400 support multiple parallel links or sessions to the mainframe. For example, users can have a low-speed line doing batch file transfers and a high-speed line supporting APPN communications, Pozefsky said.

Analysts said the enhancements are not earth-shattering,

but they are necessary features for the APPN environment.

"IBM wants to keep the AS/400 and the mainframe tightly integrated," said Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J.

Third-party software developers were also on hand to offer new client/server features for the AS/400. For example, Software 2000 announced its object-oriented Desktop Manager 2000 software, which lets users store applications on the AS/400 and, with the flip of an on-screen icon, bring down one or more applications to run on their personal computers.

"IBM is very interested in making the AS/400 a powerful server, especially at the low end where it can serve small work groups," said Bob Pemberton, chief executive officer of Software 2000, based in Hyannis, Mass. "IBM wants to make the AS/400 the server of choice in an 'open client' world."

Apple Computer, Inc. took advantage of the AS/400 announcements to provide new details on its DAL Server for AS/400. Data Access Language (DAL) is Apple's SQL-based sys-

tem that allows microcomputers to access the contents of host databases through native applications instead of terminal emulators.

DAL Server for AS/400 was first announced over a year ago when Apple and IBM agreed to tie Apple's Macintosh more closely to IBM's systems as part of a comprehensive five-point agreement. Last week, Apple added a projected cost for the server — between \$4,000 and \$35,000, depending on number of users — but said final pricing and availability would not be revealed until year end.

IBM, on the other hand, announced price changes for its PC Support/400 software, which lets PCs link to the AS/400. IBM announced "user-based pricing," which lets customers buy the software based on the number of users linked to the AS/400.

In the past, customers had to buy the program based solely on the size of the AS/400, with prices from \$796 to \$27,200. IBM said the new pricing will save money for customers that have large processors supporting only a few users and for those that upgrade processors without increasing the number of users.

To address network and systems management, IBM said it is working with Candle Corp. to build an automated operations platform that will let the AS/400 automatically gather net and system management data from attached networks.

Also available with OS/200 Version 2 Release 2 is Central Systems Administration Tools/400, which lets users at central AS/400s manage and control hardware and software on all AS/400s in the net. Operators can plan and track the distribution of files and applications while managing program fixes and net configurations.

OS/400 Version 2 Release 2 will cost from \$1,800 to \$168,000 depending on processor size.

IBM also added support for two more phone switching systems to its CallPath/400 system: AT&T's Definity Generic 3r and Northern Telecom, Inc.'s Meridian 1 Communication System Option 11. CallPath/400 integrates voice calls with data applications residing on the AS/400. □

Senior Editor Margie Wylie contributed to this story.

OMNIPoint 1 specs unveiled

continued from page 4

user requirements, procurement and development guides, object libraries, coexistence plans, regional and consortia standards agreements, application program interfaces (API), migration guidelines, testing processes and other elements.

OMNIPoint 1 includes Open Systems Interconnection Common Management Information Protocol standards, Simple Network Management Protocol specifications from the Internet community, and X/Open Company, Ltd.'s Communications Management Application Programming Interface, among others.

Vendors' products will only need to comply with a certain subset of the OMNIPoint 1 specifications — depending on the nature of the product — to be considered compliant, an NM Forum spokesman said. An integrated net management platform, for example, will need to comply with different criteria from a modem management system.

Founding members

OMNIPoint 1 was compiled by a group of 16 major user groups, testing organizations and standards bodies. In addition to the NM Forum, participants included the Corporation for Open Systems International (COS), the Object Management Group, the Open Software Foundation, Inc.

and the Standards Promotion and Application Group (SPAG), among others.

OMNIPoint-compliant products are expected to start rolling out en masse late next year, although some will appear sooner, Gilbert said.

OMNIPoint is already referenced in NIST's recently released Government Network Management Profile and will be included in similar government procurement guidelines being issued in the U.K. Individual vendors pledging support for OMNIPoint 1 include IBM and Hewlett-Packard Co.

Gary Francis, director of network management and services products at IBM in Research Triangle Park, N.C., said IBM will support OMNIPoint under its SystemView systems management strategy. It will be supported by AIX NetView/6000, LAN Network Manager, OS/400 and OS/2 distributed management services, among other products, as well as by NetView on MVS, VM and VSE platforms, he said.

"The two frameworks of SystemView and OMNIPoint have some close parallels, so as we roll out our SystemView products, they will for the most part be compliant with the OMNIPoints," Francis said.

HP's OpenView management system already supports OMNIPoint specifications, such as SNMP and an early version of the XMP API, according to a memo to the NM Forum from Bob Emerson, research and development laboratory manager for HP in Fort Collins, Colo. The memo states HP's OpenView product releases in 1993 and 1994 will include "increasing levels of support for OMNIPoint and NM Forum standards."

OMNIPoint 1 conformance and interoperability testing facilities, run by organizations such as COS and SPAG, are expected to start up early next year, Gilbert said.

The OMNIPoint partners plan to issue a new OMNIPoint about every two years.

Copies of the OMNIPoint 1 documents will be available from the NM Forum this fall for an as-yet undetermined price. A set of guides to help users and vendors figure out how to best use OMNIPoint 1 in buying and building products will also be available this fall for about \$40.

For more information, call the NM Forum office at (908) 766-1544. □

Senior Editor Wayne Eckerson contributed to this article.



Bill Gilbert

NETWORK WORLD

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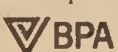
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In a Nutshell

a primer on emerging technologies

Middleware: networking's postal service

Imagine that every time you dropped a letter in a mailbox, you had to know a lot more than the recipient's name, address and zip code.

Suppose you also had to make arrangements to send it by land, sea or air, determine if it exceeds size restrictions and decide whether it should go to the top of the mail carrier's stack in the destination city.

That's what life was like for programmers before the advent of middleware, the closest thing the applications development world has to the postal service.

Middleware is the term used for an emerging class of software that resides between an application and the network. It handles requests to send messages or set up sessions between nodes on the net, and then performs all the behind-the-scenes work to deliver the data or get the two parties connected.

Middleware makes life infinitely easier for programmers. In the past, they had to write applications for native transport protocols, such as the Transmission Control Protocol/Internet Protocol and Novell, Inc.'s Internetwork Packet Exchange (IPX). Every time a new protocol was added to the network, the application had to be rewritten to support the new network link.

This state of affairs made programming enormously complicated, as developers had to be knowledgeable about the needs of every kind of network imaginable.

Middleware insulates programmers from the need to become network experts. By establishing a common set of application program interfaces, middleware enables applications to communicate across networks, regardless of their hardware platforms or networking protocols.

The exact location of the middleware varies. Sometimes the software sits alongside the local application; other times, it is part of the application itself. It can reside on the client, the server or an intermediary node on the net.

Despite its obvious advantages, there is still some debate on exactly what can be classified as middleware.

"Middleware is a holding pen for a whole bunch of different kinds of things," says Peter Tait, director of product planning at PeerLogic, Inc., a middleware vendor based in San

Francisco. "Sometimes it seems like anything that's not an application or an operating system can be middleware."

However, most experts agree that the technology can be used in four environments: in tandem with client/server applications that rely on remote procedure calls (RPC); as a communications service to SQL applications in distributed nets; as a replacement for remote job entry (RJE) in distributed file applications; and for peer-to-peer messaging in distributed messaging applications.

Client/server middleware

In a client/server scenario, a client issues a request and the server responds. Middleware makes sure an RPC is routed to the correct server in order to execute the request and send back the results. Programmers use the Interface Definition Language to write a so-called stub that links the application to middleware so that certain tasks can be performed. This stub is embedded in the application source code.

When the source code is compiled, middleware becomes part of the actual application. Using the procedural structure of an RPC, programmers do coding without devoting a significant portion of their time to writing communications links to various net services.

RPC-oriented tools that function as middleware in client/server environments include Netwise, Inc.'s RPC Tool and RPC Exec; the Open Software Foundation, Inc.'s (OSF) Distributed Computing Environment (DCE); and Hewlett-Packard Co.'s Network Computing System RPC.

Distributed databases

When used with SQL applications in a distributed database environment, middleware is triggered by an SQL select command to figure out the location of the server, establish the connection, send the request to the server and receive the response one record at a time.

Using middleware, programmers can make an SQL call without knowing the protocol involved, whether it is Named Pipes, TCP/IP or LU 6.2. Middleware can provide SQL databases with the functionality to determine what connection is needed to access a server across a net, regardless of its location and the networks in place.

Oracle Corp.'s SQL*Net, Information Builders, Inc.'s Enterprise Data Access/SQL and Borland In-

ternational, Inc.'s SQLConnect all offer middleware-type functionality.

Distributed files

Middleware used in distributed file applications replaces traditional batch processing RJE with a single set of platform-independent commands. In these applications, middleware performs session establishment, handles protocol

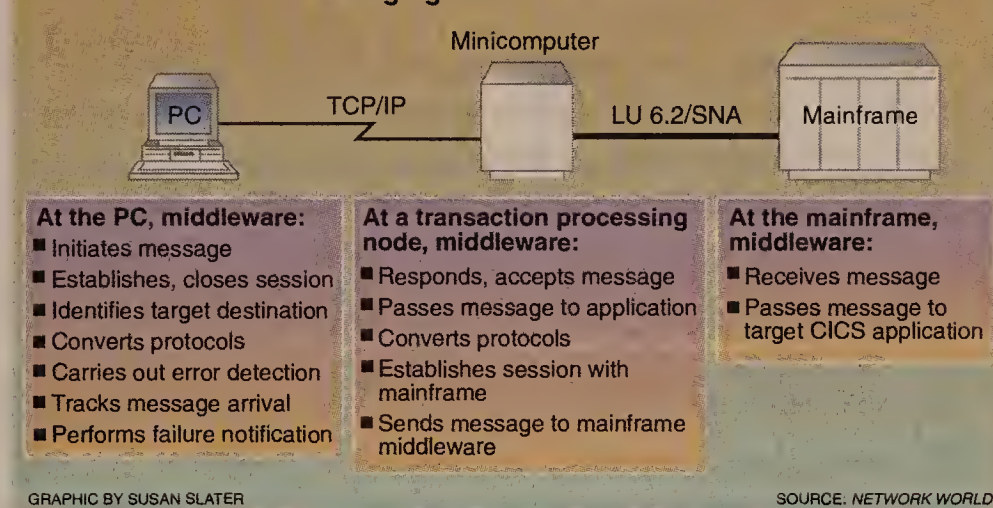
conversions between applications on disparate net devices. This type of middleware should not be confused with interpersonal store-and-forward electronic messaging systems, however.

Instead, this type of middleware enables applications to locate one another and connect, and then move messages back and forth. It also provides all the error handling necessary to route around network failures.

In this fashion, middleware can manage delivery of a message from one peer to another, but that message will

The steps middleware can take

Managing PC-to-host sessions



conversions transparently and performs batch file transfers.

A single middleware program can transparently identify the best way to send a message, guarantee its delivery, seek alternate routes and perform error recovery. Also, middleware can signal the receiving application that a message has arrived and ask the application to "wake up," an attribute also true of other types of middleware.

If there are network problems, middleware can also try alternate routes — such as X.25 or Systems Network Architecture — "and all of this is done under the hood," according to Hub Vandervoort, president of Horizon Strategies, Inc., a middleware vendor in Needham, Mass.

This brand of middleware is not confined to client/server applications. It can work with applications that are more process-oriented — where the application is used to trigger additional processing on remote servers, instead of sending a request to the server and waiting for an answer.

Prominent vendors in this category include Legent/Spectrum Concepts, Horizon Strategies and Systems Center, Inc.

Middleware used for distributed messaging fa-

not necessarily cause an immediate response to be sent back.

Instead, that original message can be received by an application that might trigger additional responses in applications located on peers across the network.

Some interprogram message-passing middleware products include Momentum Software Corp.'s Extended Inter Process Communications, PeerLogic's Named Pipes platform and Horizon Strategies' Message Express.

Just as a strike by the postal service would send people scrambling for other ways to deliver messages, without middleware, the whole internet momentum would have slowed to a crawl by now, as programmers wrestled with the intricacies of networks instead of real-world business problems.

With middleware, both programmers and end users have the chance to live more happily in an imperfect world of networks. □

Michael Conniff is managing editor of "Wall Street Network News," a newsletter published by Waters Information Services in New York.



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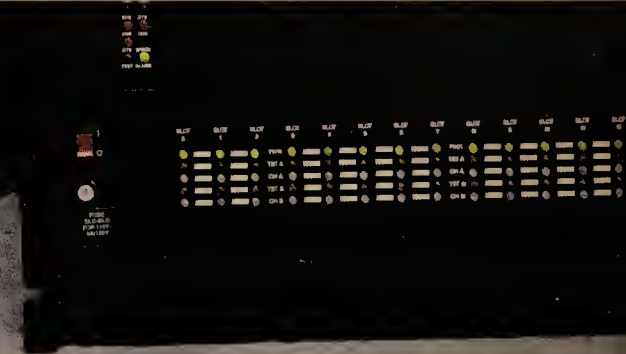
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Microcom's other PC connectivity products include: **Carbon Copy** remote control software, **Relay** PC-to-mainframe communications software, **Microcom Bridge/Router** plug-and-play remote internetworking, and **LANlord** for managing and supporting PCs on LANs.

Sales offices located in: Atlanta; Boston; Chicago; Danbury, CT; Dallas; Irvine, CA; Los Angeles; New York; Orlando; Philadelphia; San Francisco; San Jose; Seattle; Washington, D.C.



microcom[®]

Microcom, Inc. 500 River Ridge Drive, Norwood, MA 02062-5028
(800) 822-8224; (617) 551-1000; Fax: (617) 551-1021
International Fax: (617) 551-1007

Network World Welcomes New R.O.P. Advertisers in 1992

Alascom
Artel Communications Corp.
Ascom Timeplex
AT&T/Find America
Beame & Whiteside
Bell South Advanced Networks
Bull HN Information Systems Inc.
Campbell Services Inc.
Clearpoint Research Corp.
CompuServe
Department of Defense
Donaldson, Lufkin & Jenrette
Exide Electronics
Falcon Microsystems
Futurus
HP/Workstations
Interphase Corporation
Lotus cc:Mail

Lotus Notes
Microdyne Corporation
Motorola EMBARC
National Semiconductor
Northgate Computer Systems
NTT America
ODS
Quarterdeck Office Systems
Random Corporation
SOURCE
SP Telecom
Symantec
Telecom Advisor
Telecommunication Techniques
Technology Transfer Institute
TxPORT
Xylogics Inc.

Recognizing Leadership

(Continued from Page 1)

its readers. And in response, *Network World* has created our Reader Advocacy Force. The RAF consists of a team of reporters and editors who address key issues facing users of network products and services. The team will serve as the voice of network buyers, spotlighting product problems, service and support concerns, interoperability issues and other topics on the minds of readers. The first RAF report, which appeared in our June 15 issue, was an in-depth examination into the fate of the Open Systems Interconnection (OSI) movement. Other RAF articles have included examinations of vendor response to the NOS interoperability needs of users and the creation of the New York City

Metropolitan Region Mutual Aid and Restoration Agreement.

The publishing industry is one of constant momentum. And keeping pace with the energy level of our business can be a challenge. But with what's occurred at *Network World* over the past several months, it's evident that not only are we maintaining our leadership role; moreover, we are setting the standards by which all networking publications must be judged.

Only one publication consistently delivers the enterprise network market because only one publication consistently strives to meet this market's needs — *Network World*.

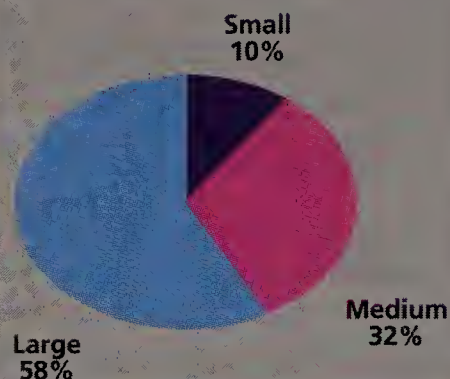
Buying Information Technology in the '90s

To help better understand the intricacies of computer product purchasing and who is involved in making these purchases, International Data Group (IDG) has commissioned the most comprehensive study to date on the purchasing process for high technology products in the U.S. Independently conducted by STAT Resources, the study, titled *Buying IT in the '90s: The People, The Patterns and The Purchase*, is based on information provided by more than 1,750 individuals across a broad range of companies.

Several highlights of the study are provided here below:

- Nine distinct buying patterns are used by businesses in the United States.
- Each pattern is driven by a primary type of player or players throughout the process from the earliest identification of a need to the final step of approving the purchase.
- Four of the nine patterns are collaboratively driven by IT as well as non-IT professionals, while a fifth pattern is driven only by IT professionals.
- As the size of the company increases, relative enterprise vs. departmental spending increases.
- The patterns reflect the relative significance of different types of players to different types of purchases.
- Patterns also vary with the size of company doing the purchasing.

Total U.S. Expenditures
by Different Size Companies

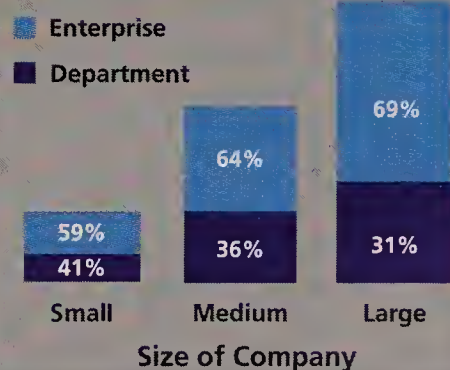


The findings of *Buying IT in the '90s* clearly demonstrate that the process used to buy information technologies in the nineties is not a singular one. Rather, purchase patterns vary significantly depending on the level of purchasing, cost of the acquisition, size of the company and type of product to be acquired. The study shows that collectively, computer professionals are seen to wield considerable influence over IT purchasing, while senior and department management and users share the remainder roughly equally.

Interested in learning more about buying IT in the '90s? Request a free copy of the full IDG study from your *Network World* sales

representative or call Tom Wilson, vice president, sales at 1-800-622-1108.

Relative Departmental vs.
Enterprise IT Spending



WRITING
PRINT
ADS
THAT
SELL!

When writing your next print ad, consider these tips from David Ogilvy:

- Don't be afraid of long copy. Assume it's the only chance you'll have to sell your product to the reader.
- Avoid tricky headlines that will confuse the reader. Prepare headlines that appeal to the reader's self-interest.

- Get straight to the point. Be specific and factual.
- Use headlines that quote somebody.
- Communicate helpful advice or service to the reader.
- Test everything. Test your headlines, your ad size, your offer.
- Remember that in retail ads headlines of 10 words or more

consistently sell more merchandise than short headlines.

- Remember also that photographs sell more than drawings. Photographs represent reality. Drawings don't.

Source: David Ogilvy, writing in *Direct*, PO Box 4949, Stamford, CT, 06907 as seen in *Communication Concepts*.

Microcom Modems Pick Up Where Others Drop Off

It's no longer a secret.

MNP[®] 10 (Microcom Networking Protocol[™]) modems establish and maintain stable connections, when other modems can't. Over telephone lines or cellular links, Microcom MNP 10 modems get your data transmitted quickly, reliably, and cost effectively.

MicroPorte[™] Portable Modems

Reliability on the road or in the office. Over cellular links or phone lines. MNP 10. Up to 57.6 Kbps throughput. V.32bis. V.42 error control. V.42bis data compression. *MicroPorte is the fastest and most reliable portable modem on the market.*



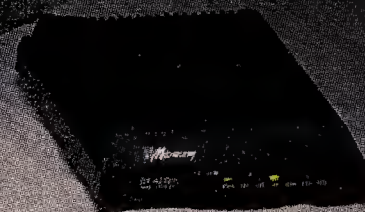
Cellular Data Link[™] (CDL[™])

Stability over cellular links. Mitsubishi cellular phone with integrated V.22bis MNP 10 modem. Up to 9.6 Kbps throughput. V.42 error control. V.42bis data compression. *CDL is the only integrated cellular phone and modem on the market.*



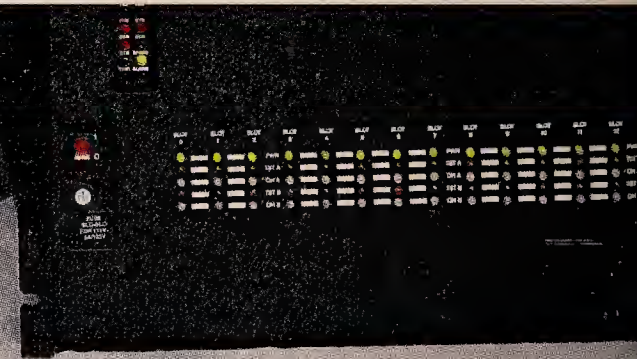
QX/4232bis[™] Desktop Modems

High performance standalone modems. MNP 10 performance and reliability. Up to 57.6 Kbps throughput. V.32bis. V.42 error control. V.42bis data compression. *QX/4232bis is the fullest featured modem in its class.*



HDMS[™]

Modem management system for dial-up networks. Inbound, outbound and LAN security. Monitoring, automated configuration & alarm reporting with event logging. *HDMS is the best selling modem management system on the market.*



Whether you're into portable or cellular computing; need fast, reliable desktop modems; or require a modem management system, Microcom delivers.

Call **1-800-822-8224**

for a FREE copy of the "Guide to MNP," and local reseller information.

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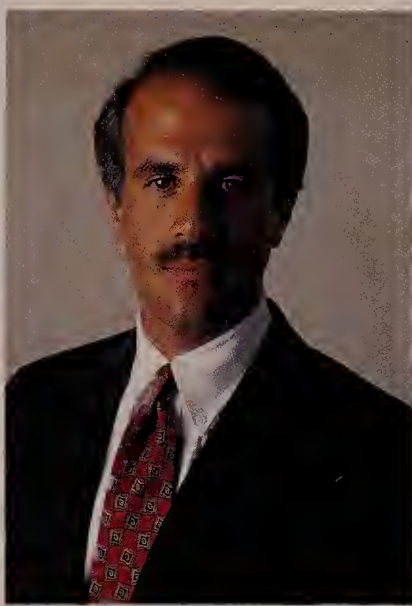
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Industry Leadership Recognized



Colin B. Ungaro
President/Publisher

June 1992 was a watershed month for *Network World* on virtually all fronts as we set records for readership and advertising, and developed a new, unique method for advertisers to reach network buyers.

The 268 ad pages and 408 total pages made June 1992 *Network World's* most successful month ever, running significantly ahead of last year, and following a very strong May. In addition, our June 22nd issue, which included a special 44-page supplement on groupware, was the largest in *Network World's* six year history. Thank you for your continued support.

But looking back over this past year, what makes our achievement so significant is how we got there — by consistently providing a product that sets the standard for quality, innovation and leadership — by understanding that networking has become the “umbrella” information technology — and by being the only publication that focuses on the entire network from LANs to WANs and the applications that make them run.

Readers' First Choice

Winning one readership study is an achievement worth touting. At *Network World*, we are proud to announce a virtual clean sweep of the industry's key networking studies.

First, by a record breaking margin, network professionals voted *Network World* their best read publication in the INTEROP 91 Fall study. ComNet East attendees also chose *Network World* as their best read publication, making for a five-time winning streak. And finally, members of the International Communication Associate (ICA) voted *Network World* their most important and useful trade publication for the third consecutive time.

The Best Barometer

It is editorial quality and leadership that ultimately translates into reader loyalty and consistently excellent readership scores. So it was most gratifying to win this year's *MagazineWeek* Award for Editorial Excellence. Editorial Excellence Awards are given each year by *MagazineWeek* to publications in 52 trade and consumer categories. This year, more than 500 magazines submitted entries. Criteria for winning included: the demonstration of overall quality; support by a publication of its editorial mission; superior feature articles; well-defined departments; and integrated high-quality design.



Network World has always been committed to providing readers with the information they need to make informed buying and business decisions in the rapidly evolving network market. We are excited that *MagazineWeek* has honored our success in achieving this goal.

The Industry Leader

While *Network World* maintains a strong presence at more than 30 industry events each year, we constantly look for ways to enhance our position and better serve both the attendees and vendors at these shows. Our increased role at INTEROP 92 Fall is just one result of this endeavor.



At INTEROP 92 Fall look for *Network World* to serve as the guide to INTEROP's Solution Showcase™. The Solutions Showcase is a demonstration focusing on the latest interoperability solutions for AppleTalk, FDDI, Frame Relay, Messaging, Network Management, SMDS, SNA/DEC/TCP/IP and Wireless. And at *Network World*, we're producing Inside INTEROP, a special section devoted exclusively to the technologies that encompass the INTEROP Solutions Showcase Demonstrations. Inside INTEROP will be bound into the

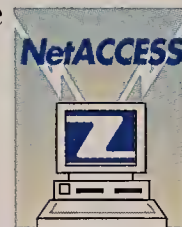
September 28 issue of *Network World* and be distributed at INTEROP 92 Fall. It will also be premailed to INTEROP 92 Fall attendees and be included in the conference's pre-registration kits.

Network World will also present the Enterprise Technology Awards (ETA) at INTEROP 92 Fall. This award gives users the opportunity to vote for the vendors whose products and services work best in an enterprise network. Nominees were determined based on a combination of market research and input from *Network World* staff and contributors. But what makes this award truly distinctive is that only users will serve as judges. The results will be presented in a feature article in *Network World* and the awards will be given prior to the INTEROP 92 Fall vendor party.

Enhancing Our Partnerships

In order to remain a leader, a publication must continually strive to enhance its value to both its readers and advertisers. And we've made two exciting moves with the creation of NetACCESS and the launch of our Reader Advocacy Force (RAF).

NetACCESS is a first-of-its-kind interactive advertising program offered by *Network World*. By using NetACCESS, callers are able to download demonstration copies of products offered by *Network World* advertisers for a trial run. All *Network World* advertisers are offered the opportunity to place demonstration copies of their products on the *Network World's* Electronic Bulletin Board System (BBS) for one month after their ad appears in the publication — free of charge. Advertisers may also choose to have a BBS logo place on their ad advising readers that a demonstration of their product is available on the bulletin board.



One of the most important responsibilities of any publication is to serve as an advocate for

(Continued Page 3)

- New Products Launched
- New Faces
- *Network World* Upcoming Features
- *Network World* Welcomes New R.O.P. Advertisers In 1992
- Writing Print Ads That Sell
- Buying IT in the '90s

New Products Launched by Network World and ETA

Productivity Tool for Networking Professionals

In response to the growing demand by networking professionals for better productivity tools, *Network World* has introduced NetDraw™, clip-art for building networks. NetDraw is a clip-art library designed to assist those who must diagram, chart or communicate information about their organization's infrastructure. It is the first clip-art software package created exclusively for networking and information systems professionals.

NetDraw gives users immediate access to over 170 professionally drawn objects in six categories: computing, WANs, LANs, telephony, personal computing, and patching and cabling. NetDraw is available in Macintosh, DOS and Windows formats. Individual copies can be purchased at an introductory



price of \$99.95 and may be ordered by calling 800-643-4668.

For a limited time, NetDraw is now also offered in an exciting custom version for use as a premium offering to clients and customers. With custom versions of NetDraw, sales and support personnel have an ideal promotional item to leave behind on sales calls. And customers will be reminded of your company each time they open this useful software product.

Features of the custom

packages include:

- Software diskettes, User's Guide, and product packaging label custom printed with your corporate logo.
- Your corporate logo is also digitized and placed prominently on each clip-art style sheet so users see your logo every time they use the product.
- 12 custom drawn clip-art images of items in your product line.

For more information about the custom versions of NetDraw, call Bill Reinstein, director of special projects at 800-622-1108.

Market Analysis and Prospect Targeting Tool

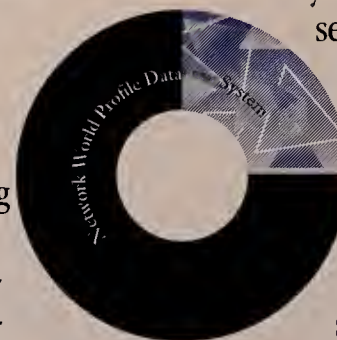
Emerging Technology Applications (ETA) now offers the *Network World* Profile Database System based on the publication's circulation and prospect database of more than 215,000 key contacts and decision makers across 140,000 locations with networking responsibility. Profiles covering business demographics, installed equipment and services, budgets, and plan to purchase data for more than 100 different products and services is offered to each subscriber.

The *Network World* Profile Database System is designed for market analysis; site profiling; building product aware-

ness across key buying influences; identifying and prioritizing key companies, locations, and buyers of various products and services; tailoring media messages to specific markets; targeting lists to use in implementing direct response campaigns; and message and audience targeting for white papers and catalogs.

The *Network World* Profile Database System provides users with desktop search, analysis, display, print, and export capabilities as well as priority access to labels (contacts). Detailed analysis can be done within the system based on specific and refined segmentation criteria. The system is delivered on CD-ROM and includes fully integrated software, crosstab statistics, program, support, documentation, and one update.

For more information, contact Jim Reynolds at ETA at 508-820-8643.



New Faces

Tom Wilson Named Vice President, Sales

Wilson will direct the advertising sales efforts of *Network World* nationally for eight district offices as well as oversee the publication's product classified advertising department. Prior to joining *Network World*, Wilson was the vice president/advertising director for the *National Law Journal* and the *New York Law Journal*. He has also served as publisher for *Fiberoptic Product News* and *Lasers and Optronics* magazine.

Jim Duffy Comes Aboard Network World as Senior Editor, Data Communications

Duffy comes to *Network World* from *Computer Systems News* where he was a senior editor coordinating network coverage. He will be based in Framingham, MA. Duffy has also worked as a reporter for *MIS Week*, and an associate editor for *Electronic News*.

Monica Sambataro Hired as Copy Editor

Sambataro has signed on full-time to *Network World's* copy desk as a copy editor. She began working at *Network World* in January part-time and is currently working towards a BA in communications.

Network World Welcomes Debra Mahler as Sales Assistant

Mahler will assist Tom Wilson with keeping in touch with the regional sales offices as well as generating market share reports. A former marketing assistant at The Law Offices of James Sokolove, her previous work involved events planning and database management.

.....Network World Upcoming Features.....

September

Sept. 7 (Aug. 26)*
International Update on
the European Community
Special: Lead Service

Sept. 14 (Sept. 2)
Buyer's Guide: LAN
Imaging Systems
Special: Harvey Study

Sept. 21 (Sept. 9)
1. Annual Budget Survey
2. Buyer's Guide: PBX-
to-Host Applications
Bonus Distribution: TCA
and Unix Expo
Special: Lead Service

Sept. 28 (Sept. 16)
Building a Multiprotocol
Backbone
Special: Security Feature
Advertising Supplement:
Inside INTEROP
Bonus Distribution:
Downsizing/Rightsizing
Corporate Computing

October

Oct. 5 (Sept. 23)*
Disaster Recovery Services

Oct. 12 (Sept. 30)
1. GSPD: LAN Operating
Systems
2. LAN Management Update
Bonus Distribution:
NetWorld Dallas
Special: Lead Service

Oct. 19 (Oct. 7)
1. Telecom Service Manage-
ment Options
2. Integrated Network Man-
agement Update
Bonus Distribution: CMA

Oct. 26 (Oct. 14)
1. Buyer's Guide: Routers
2. TCP/IP Strategies
Special: Security Feature
Bonus Distribution:
Interop West
Special: Lead Service

November

Nov. 2 (Oct. 21)*
Wireless LANs

Nov. 9 (Oct. 28)
Buyer's Guide: Switched
Digital Services

Nov. 16 (Nov. 4)
Special Issue: Client/Server
Bonus Distribution:
Comdex Fall & COS Users
Forum
Special: Lead Service

Nov. 23 (Nov. 11)
Annual User Excellence
Awards

Nov. 30 (Nov. 18)
GSPD: Distributed DBMS
Special: Security Feature
Special: Lead Service

For more information, contact your
Network World sales representative or call 1-800-622-1108.
*advertising close date